# SIEMENS

# Farbfernsehgeräte
# Color TV
# Televisore a colori

**FC 908**
**FC 909**
**FC 910**
**FC 918**
**FC 919**

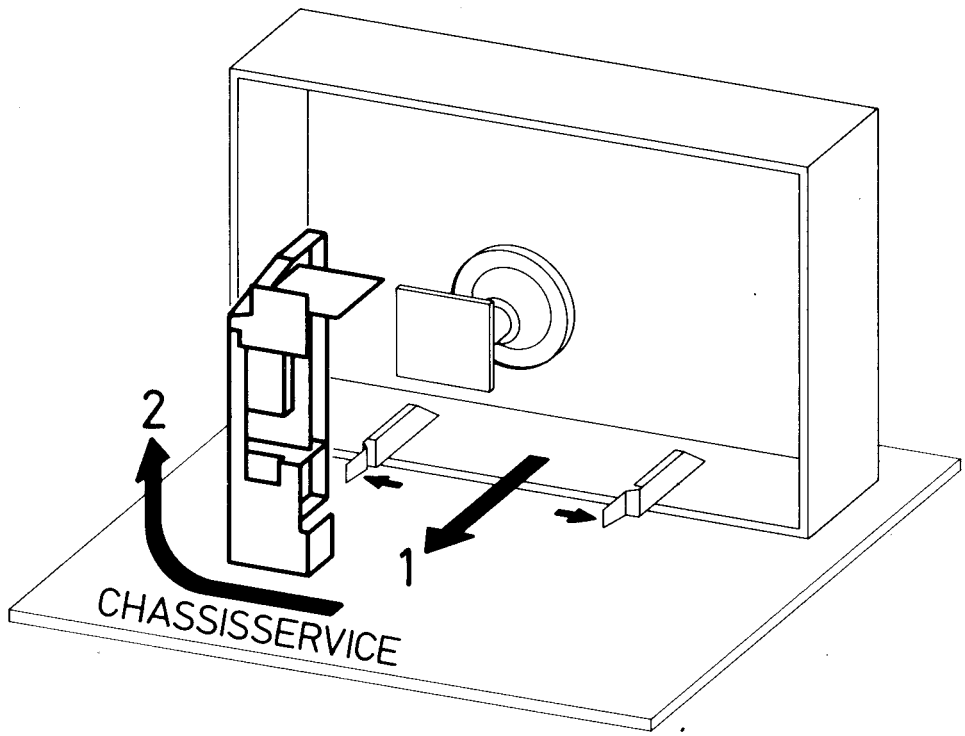
## Kundendienstschrift für Grundchassis
## Service manual for basis chassis
## Istruzioni d'assistenza il telaio

# 340-0

**Bedienteil · Control unit · Sezione di comando**

**TP 40**

## Servicestellung
## Service position
## Posizione di servizio




Diese Geräte tragen das VDE-Zeichen und erfüllen daher die einschlägigen VDE-Bestimmungen. Um die Sicherheit der Geräte zu erhalten, müssen die mit einem solchen Symbol in den Kundendienst-Unterlagen gekennzeichneten Bauelemente durch Originalteile ersetzt werden.

Wichtig ist auch, daß Bauelemente in gleicher Lage wieder eingesetzt werden.

**Achtung!** Nach optimalen Einstellungen im Bildröhrenwerk bilden Bildröhre und Ablenksystem eine festverbundene Einheit.
Es erlischt die Bildröhren-Garantie, wenn
- die Lage des Ablenksystems oder der Korrekturmagnete verändert wird.
- Befestigungsmuttern oder Versiegelungen gelöst werden.

These sets are provided with the VDE sign, thus fulfilling the VDE regulations. In order to maintain the safety of the sets, the components marked with a suchlike symbol in the service manuals must be replaced by original parts.

It is also important that components are placed in the same position.

**Note!** After optimum adjustments in the picture tube factory, picture tube and deflection yoke represent a firmly connected unit.
Picture tube warranty is expiring in case
- the position of the deflection yoke or the correction magnets is changed,
- mounting nuts or sealings are loosened.

Gli apparecchi sono contrassegnati con il marchio VDE e quindi corrispondono a queste norme. Per garantire la sicurezza degli apparecchi, i componenti contrassegnati con il simbolo riportato a destra e rilevabile dalle istruzioni di manutenzione, devono essere sostituiti con componenti originali.

E'importante che i componenti vengano inseriti di nuovo nella loro posizione originale.

**Attenzione:** Dopo la regolazione ottimale effettuata in sede di fabbricazione il cinescopio ed il giogo di deflessione formano un sistema unico. E' quind vietato:
- spostare i componenti i posti sul collo del cinescopio.
- allentare le viti di tali componenti.


Ausgabe 728
Issue
Edizione

Änderungen vorbehalten
Modifications reserved
Con riserva di modifiche

**Ident. Nr. 53 5231**

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REI VERS. A/B AUF CHASSIS BESTUECKT
ON A/B VERS. FITTED ON CHASSIS
NELLE VERS. A/B MONTATA SUL TELAIO
EN VERS. A/B MONTEE SUR LE CHASSIS

IR-VORVERST.
IR-PREAMPL.
PREAMPL.IR
29304-015.54

LED-PL.29304-013.16/.17
LED BOARD
PIASTRA LED
C.I. LED

UAA 2022
IC881

SDA 2010-A 025 (MOS)
IC811

KEYBOARD
C.I. DE COMMANDE
29503-925.92

TDA4052
IC1211

BED.-EINHEIT /CONTROL UNIT / UNITA DI COMANDO / UNITE DE COMMANDE

K.-TUNER 29504-101.01
CABLE TV TUNER
TUNER TV CAVO
TUNER TELEDISTRIBUTION

ZF/SYNC. 29504-102.64/.65
IF SYNC.
SINCR. FI

EURO-AV-BUCHSE/EURO-AV SOCKET
PRESA EURO AV/EMBASE PERI TV

I²C-BUS SIEHE SERVICE HINWEISE
SEE SERVICE NOTES
VEDI AVVERTENZA DI SERVIZIO
VOIR INDICATIONS DE SERVICE

ZEILENNETZTRAFO
LINE TRANSFORMER
TRASF. DI RETE DI RIGA
TRANSF. ALIMENT.
BALAYAGE LIGNES
TR665 29201-024.01

K501

ZEILENABL.TRANS.
LINE DEFLECTION TRANS.
TRANS.DI DEFLESS.RIGA
TRANS.BALAYAGE LIGNES

TDA8140
IC526

WISCHER/TEMP. CONTACT
CONTATTO TEMP.

ENTMAGNETISIERUNG/DEGAUSSING
SMAGNETIZZAZIONE/DEMAGNETITISATION

29304-065.36
NETZSCHALTERPL.
MAINS SWITCH BOARD
PIASTRA INTERR. DI RETE
C.I. INTERR. SECTEUR

BEI VERS. A/B AUF CHASSIS
BESTUECKT.
ON A/B VERS. FITTED ON
CHASSIS.
NELLE VERS. A/B MONTATA
SUL TELAIO.
EN VERS. A/B MONTEE
SUR LE CHASSIS.

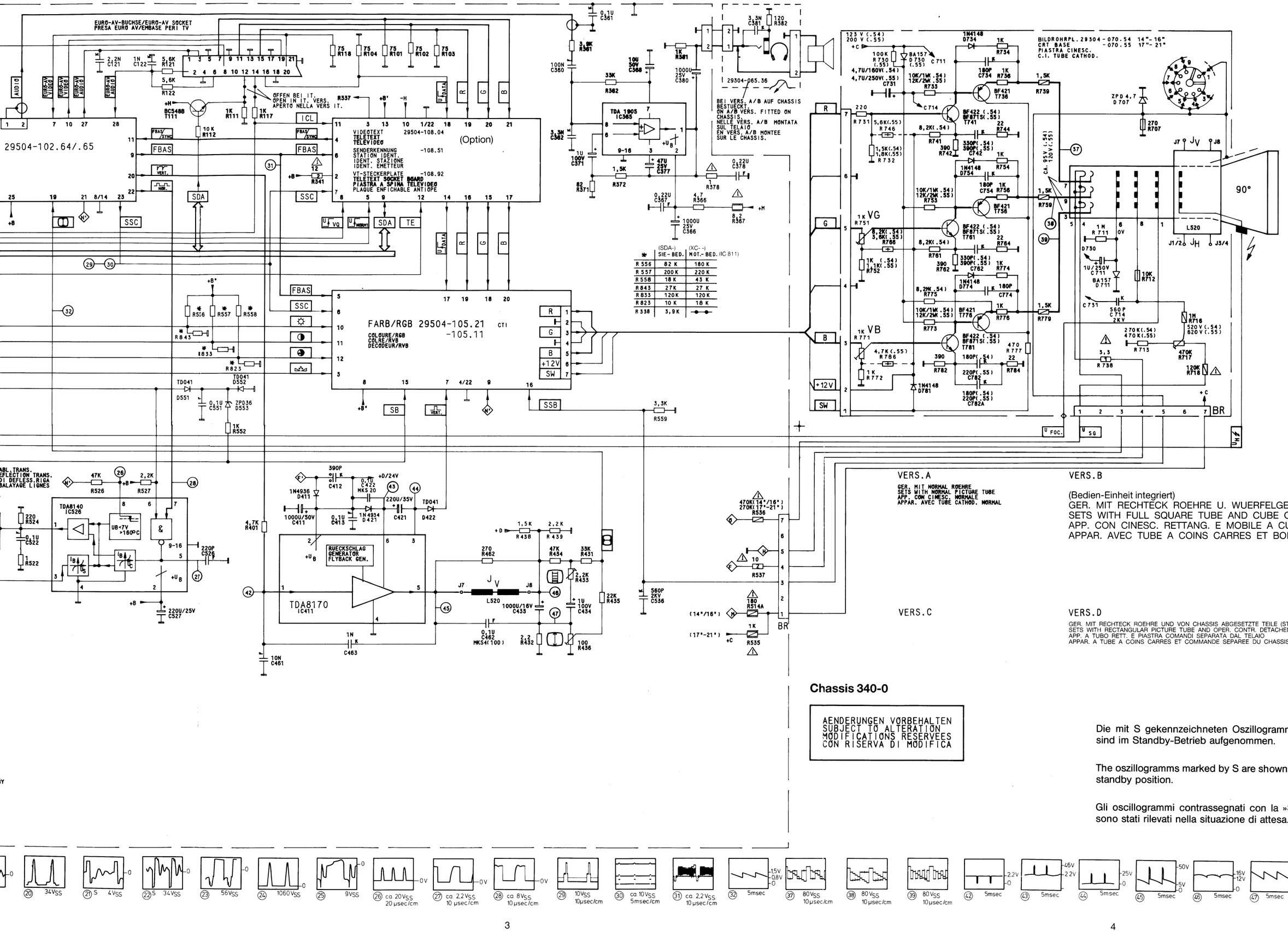
TDA 3640
IC655

PRIMAERMASSE ACHTUNG: NICHT NETZGETRENNT
PRIMARY CHASSIS, NOTE: NOT MAINS ISOLATED
MASSA RPIMARIO, ATTENZ. NON SEPAR. DALLA RETE
MASSE PRIMAIRE ATTENTION: NON ISOLE DU SECTEUR

NICHT NETZGETRENNTES SCHALTUNGSTEIL
CIRCUIT NOT MAINS -ISOLATED
CIRCUITO NON SEPARATO DALLA RETE
CIRCUIT NON ISOLE DU SECTEUR

SIEHE/SEE/VEDI/VOIR D331

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23




| * | (SDA-) SIE-BED. | (XC--) MOT.-BED. (IC 811) |
|---|---|---|
| R 556 | 82 K | 180 K |
| R 557 | 200 K | 220 K |
| R 558 | 18 K | 43 K |
| R 843 | 27K | 27 K |
| R 833 | 120K | 120K |
| R 823 | 10 K | 18 K |
| R 338 | 3,9K | |

## Chassis 340-0

AENDERUNGEN VORBEHALTEN
SUBJECT TO ALTERATION
MODIFICATIONS RESERVEES
CON RISERVA DI MODIFICA

Die mit S gekennzeichneten Oszillogramme sind im Standby-Betrieb aufgenommen.

The oszillogramms marked by S are shown in standby position.

Gli oscillogrammi contrassegnati con la »S« sono stati rilevati nella situazione di attesa.

### Service am I²C-Bus

Bei Fehlfunktionen des Gerätes, die nicht auf Netzteil, Hochspannung und Ablenkung zurückzuführen sind, ist der I²C-Bus gemäß Tabelle 1 zu püfen, bevor weitere Servicearbeiten nach Tabelle 2 durchgeführt werden.

Der µComputer in der Bedieneinheit IC 811 liefert Steuerbefehle für Tuner, Videotext und T 111 (zur EURO-AV-BUCHSE) über den I²C Bus.

Hinweis:

Bei Modulwechsel ist das Gerät generell auszuschalten!

Auch in Stellung »Bereitschaft« darf kein Modul gezogen werden! MOS-handling beachten.

**Tablle 1**

| Messung | Meßwert | Meßpunkt | Mögliche Fehler |
|---|---|---|---|
| +H | 5V | Pin 40, IC 811 | D 691, IC 686, IC 811 |
| 4 MHz Takt<br>Reset | 4 MHz, 3 $V_{ss}$<br>4 $V_{ss}$ nur im Einschaltmoment | Pin 22, IC 811<br>Pin 23 | F 811, IC 811<br>C 806, IC 811 |
| I²C Bus | 5 $V_{ss}$ | Pin 10, 37, IC 811 | Die I²C-Bus-Daten sind auch ohne TP-Bedienung oder Keyboardeingabe vorhanden. Bei fehlenden Daten: Die Leitungen SDA und SLC auftrennen. Sind dann die I²C-Bus-Daten vorhanden, liegt eine Überlastung des I²C-Bus vor. **Fehlerursache:** Tuner, Videotext, T 111 |

**Tabelle 2**

Mögliche Fehlerarten des Gesamtgerätes

| Fehler | Mögliche Ursache | Meßwert | Meßwert |
|---|---|---|---|
| Keine Frequenzabstimmung | Tuner (Speicher, PLL) | +0,2 – 30 V | Pin 13, 15 |
| | +B' | +12 V | Tuner Pin 16 |
| | +H | + 5V | Tuner Pin 2 |
| | ⟨M⟩ | ca +4,5 V | Tuner Pin 1 |
| Keine Bedienfunktion | +H, IC 811 | + 5V | IC 811 Pin 40 |
| LED falsche Anzeige | IC 811 | | |
| | F 808 | 4 MHz, 3 V | IC 811 Pin 22 |
| Nur Raster | ZF/SYNC. | SSC (29), (30) | ZF/SYNC. Pin 23 |
| | Farb/RGB | SSC (29), (30) | Farb/RGB Pin 6 |
| Kein FBAS-Signal | Tuner (nicht bei CUC 3300) | ca. 10 V | Tuner Pin 3 |
| | ZF/SYNC. (nicht bei CUC 3300) | ca. 10 V | ZF/SYNC. Pin 12 |
| | +B' | +12 V | ZF/SYNC. Pin 24 |
| | +B | +12 V | ZF/SYNC. Pin 25 |
| Kein Ton | ZF/SYNC. | Analogspannung ca. 0,5V-5V | ZF/SYNC. Pin 17 |
| | Keine Koinzidenzkennung (ZF/SYNC.) | > 4 V | IC 811 Pin 19 |
| | IC 365 | +M/ca. 18 V | IC 365 Pin 2 |
| Keine Programmumschaltung mit TP | IR-Vorverstärker | IR-Signal 5 $V_{ss}$ | IC 811 Pin 3 |
| Keine Analogwerte für<br>Helligkeit<br>Kontrast<br>Farbkontrast | <br>IC 811, C 843<br>IC 811, C 833<br>IC 811, C 823 | <br>1-3 V<br>2-4 V<br>2-4 V | <br>Farb/RGB Pin 10<br>Farb/RGB Pin 11<br>Farb/RGB Pin 12 |
| Beim Einschalten mit der Netztaste schaltet das Gerät auf Bereitschaft | T 801 | beim Einschalten kurzzeitig »LOW« | IC 811 Pin 31 |



### Service checks on the I²C bus

If faults occur in the set which cannot be attributed to the power supply unit, the EHT or the deflection system, the I²C bus should be checked using Table 1 before further service work is carried out using Table 2.

Via the I²C bus the microcomputer in the control unit IC 811 supplies control signals for the tuner, videotext (teletext) and T 111 (to the EURO-AV-socket).

Note:

When a module is being changed, the set should be switched off completely. Modules must not be unplugged even in the "standby" mode! Observe MOS handling precautions.

**Table 1**

| Test | Test Figures | Test Point | Possible faults |
|---|---|---|---|
| +H | 5V | Pin 40, IC 811 | D 691, IC 686, IC 811 |
| 4 MHz clock<br>Reset | 4 MHz, 3 $V_{pp}$<br>4 $V_{pp}$ only at moment of switch on | Pin 22, IC 811<br>Pin 23 | F 811, IC 811<br>C 806, IC 811 |
| I²C bus | 5 $V_{pp}$ | Pin 10, 37, IC 811 | The I²C bus data are present even without input from the remote control or keyboard. If data are absent disconnect the SDA and SLC lines. If data are then present on the I²C bus, the I²C bus is overloaded. Possible faults: Tuner, teletext, T 111 |

**Table 2**

Possible faults which can occur in any part of the set.

| Fault | Possible Cause | Test Figure | Test Point |
|---|---|---|---|
| No frequency tuning | Tuner (memory, PLL) | +0.2 – 30 V | Pin 13, 15 |
| | +B' | +12 V | Tuner, pin 16 |
| | +H | + 5V | Tuner, pin 2 |
| | ⟨M⟩ | +4.5 V approx. | Tuner, pin 1 |
| No functions accepted | +H, IC 811 | + 5V | IC 811, pin 40 |
| Incorrect LED indication | IC 811 | | |
| | F 808 | 4 MHz, 3 V | IC 811, pin 22 |
| Raster only | IF/sync | SSC (29), (30) | IF/sync, pin 23 |
| | Colour/RGB | SSC (29), (30) | Colour/RGB, pin 6 |
| No CCVS | Tuner (not on CUC 3300) | 10 V approx. | Tuner, pin 3 |
| | IF/sync. (not on CUC 3300) | 10 V approx. | IF/sync, pin 12 |
| | +B' | +12 V | IF/sync, pin 24 |
| | +B | +12 V | IF/sync, pin 25 |
| No sound | IF/sync | Analog voltage 0.5-5 V approx. | IF/sync, pin 17 |
| | No coincidence identification (IF/sync) | > 4 V | IC 811, pin 19 |
| | IC 365 | +M/about 18 V | IC 365, pin 2 |
| Programme cannot be change with remote control | IR-preamplifier | IR-signal 5 $V_{pp}$ | IC 811, pin 3 |
| No analog signals for<br>Brightness<br>Contrast<br>Colour contrast | <br>IC 811, C 843<br>IC 811, C 833<br>IC 811, C 823 | <br>1-3 V<br>2-4 V<br>2-4 V | <br>Colour/RGB, pin 10<br>Colour/RGB, pin 11<br>Colour/RGB, pin 12 |
| Set switches to standby mode on operation of power button | T 801 | Short-time "LOW" on switch-on | IC 811, pin 31 |

### Servizio per I²C-Bus

Se l'apparecchio funziona erroneamente e ciò non dipende nè dall'alimentatore, nè dall'alta tensione o dalla deflessione, occorre controllare il bus I²C secondo la tabella 1 prima di effettuare altri lavori di assistenza come da tabella 2.

Il microcomputer nell'unità di comando IC 811 fornisce le istruzioni per tuner, televideo e T 111 (alla presa EURO/SCART) attraverso il bus I²C.

Nota:

Spegnere l'apparecchio durante la sostituzione di un modulo! Non togliere il modulo memmeno con apparecchio in posizione d'attesa! Fare attenzione alle norme MOS.

**Tabella 1**

| Misura | Valore di misura | Punto di misura | Possibili guasti |
|---|---|---|---|
| +H | 5V | Pin 40, IC 811 | D 691, IC 686, IC 811 |
| Cadenza 4 MHz<br>Reset | 4 MHz, 3 $V_{pp}$<br>4 $V_{pp}$ solo all'atto dell'accensione | Pin 22, IC 811<br>Pin 23 | F 811, IC 811<br>C 806, IC 811 |
| Bus I²C | 5 $V_{pp}$ | Pin 10, 37, IC 811 | I dati nel bus I²C sono presenti anche senza comando da TP o immissione tramite tastiera. Se i dati mancano: interrompere le linee SDA e SLC. Se ora i dati sono presenti, nel bus I²C c'è un sovraccarico. **Possibili cause del guasto:** tuner, televideo, T 111. |

**Tabella 2**

Possibili guasti nell'apparecchio

| Guasto | Possibile causa | Valore di misura | Punto di misura |
|---|---|---|---|
| Non è possibile sintonizzare la frequenza | Tuner (memoria, PLL) | +0,2 – 30 V | Pin 13, 15 |
| | +B' | +12 V | Tuner Pin 16 |
| | +H | + 5V | Tuner Pin 2 |
| | ⟨M⟩ | ca +4,5 V | Tuner Pin 1 |
| Nessuna funzione viene accettata | + H, IC 811 | + 5V | IC 811 Pin 40 |
| Indicazione LED errata | IC 811 | | |
| | F 808 | 4 MHz, 3 V | IC 811 Pin 22 |
| Solo raster | FI/sinc. | SSC (29), (30) | FI/sinc. Pin 23 |
| | Colore/RGB | SSC (29), (30) | Colore/RGB Pin 6 |
| Manca il segnale FBAS | Tuner (non p. CUC 3300) | ca. 10 V | Tuner Pin 3 |
| | FI/sinc. (non p. CUC 3300) | ca. 10 V | FI/sinc. Pin 12 |
| | +B' | +12 V | FI/sinc. Pin 24 |
| | +B | +12 V | FI/sinc. Pin 25 |
| Manca l'audio | FI/sinc. | Tensione analogica ca. 0,5V-5V | FI/sinc. Pin 17 |
| | Nessun riconoscimento di coincidenza (FI/sinc.) | 4V | IC 811 Pin 19 |
| | IC 365 | +M/ca. 18V | IC 365 Pin 2 |
| Non viene commutato il programma con TP | Preamplif. IR | Segnale IR 5 $V_{pp}$ | IC 811 Pin 3 |
| Manca il valore analogico per<br>luminosità<br>contrasto<br>contrasto colore | <br>IC 811, C 843<br>IC 811, C 833<br>IC 811, C 823 | <br>1-3 V<br>2-4 V<br>2-4 V | <br>Colore/RGB Pin 10<br>Colore/RGB Pin 11<br>Colore/RGB Pin 12 |
| Accendendo con tasto rete l'apparecchio commuta in posizione d'attesa | T 801 | All'atto dell'accensione brevemente «LOW» | IC 811 Pin 31 |



**(D) 1. Funktionshinweise ZEI**

Beim Zeilen-Netz-Teil (ZNT) hande
nur einer Netztrennstelle im ZNT-T
nen einfachen Stand By-Betrieb

**Einschaltvorgang über Netztast**

Der T661 liegt über die Primärseite
steuert durch IC655 (PIN 15) erze
Sobald IC 811 eingeschwungen is
wird periodisch angesteuert und g
geleitet. Die lastabhängige Nachst
versorgung.
Bei Stand by (Bereitschaft) wird üb
schaltvorgang voll durch. Dies ent
Stand by.
Bei Stand by übernimmt nur PIN 2

**2. Service-Hinweise für ZEILEN**

Gerät mit Netztrenntransformator
Bei Fehlfunktionen des Zeilen-Ne
1. Kollektor/Emitter T 521 überbr
2. Anlaufspannung über R 641 Pi
3. Startspannung über D 647 Pin
4. Referenzspannung Pin 17 IC 65
5. Oszillatorfrequenz Pin 15 IC 65
6. +M = ca. 11 V (stand by)
   +H = 5V
7. +C = < 12 V
   +B = < 2 V (undefiniert bei
8. C 626 muß vor Wechsel des IC
9. Netzteil-Regelbereich: 140-27

**(GB) 1. Short Description of th**

The line mains supply unit (ZNT) is
and just one mains isolating point
load variations and easy stand-by

**Process on operation of power**

T 661 is connected to the mains vo
rhythm produced by IC 655 (pin 15
the transient response time of IC 8
T 521 is now subject to cyclical con
normal operation is initiated. The
used for power supply.
In the stand-by mode, pin 6 of IC 52
the case on switch-on. This is equi
at pin 12.
In the stand-by mode, only pin 2

**2. Service Instructions for Line**

Operate the unit via the mains iso
Troubleshooting in case of line ma
1. Bypass collector/emitter T 521
2. Initial voltage via R 641, pin 18,
3. Starting voltage via D 647, pin 2
4. Reference voltage, pin 17, IC 6
5. Oscillator frequency, pin 15, IC
6. +M = 11 V approx. (stand-by)
   +H = 5V
7. +C = < 12 V
   +B = < 12 V (not defined in
8. Be sure to discharge C 626 be
9. Mains unit range of adjustment

**(I) 1. Breve descrizione dell'a**

L'alimentatore di riga (ZNT) è un ali
nato ed un solo punto di separazion
variazioni del carico ed un semplic

**Accensione con l'interruttore di**

T 661 è collegato alla tensione di re
comando di IC 655 (pin 15), genera
Quando IC 811 è attivo, attraverso T
ora comandato periodicamente ed
l'integrato IC 655 da funzionamento
viene effettuata dalla tensione di r
In stand-by (posizione d'attesa), tra
sto modo T 521 conduce completar
di trigger mancanti al pin 12, IC 65
Questa situazione prevede che so

**2. Istruzioni di servizio per l'alin**

Alimentare l'apparecchio con un t
Se l'alimentatore di riga funziona e
1. Cortocircuitare collettore/emett
2. Tensione di avviamento, tramite
3. Tensione di start.
4. Tensione di riferimento, pin 17
5. Frequenza dell'oscillatore, pin 1
6. +M = ca. 11 V (stand-by)
   +H = 5V
7. +C = < 12 V (indefinito in sta
   +B = < 2 V
8. C 626 deve essere scarico prir
8. Campo di regolazione dell'alim

ore, nè dall'alta tensione o
ffettuare altri lavori di assi-

televideo e T 111 (alla pre-

il modulo memmeno con

| guasti |
|---|
| 686, IC811 |
| 811<br>811 |
| bus I²C sono presenti<br>nza comando da TP o<br>ne tramite tastiera. Se<br>ncano: interrompere<br>SDA e SLC. Se ora i<br>presenti, nel bus<br>n sovraccarico.<br>**cause del guasto:**<br>evideo, T111. |

| Punto di misura |
|---|
| Pin 13, 15 |
| Tuner Pin 16<br>Tuner Pin 2<br>Tuner Pin 1 |
| IC811 Pin 40 |
| |
| IC811 Pin 22 |
| FI/sinc. Pin 23 |
| Colore/RGB Pin 6 |
| Tuner Pin 3 |
| FI/sinc. Pin 12 |
| FI/sinc. Pin 24 |
| FI/sinc. Pin 25 |
| FI/sinc. Pin 17 |
| IC811 Pin 19 |
| IC365 Pin 2 |
| IC811 Pin 3 |
| Colore/RGB Pin 10<br>Colore/RGB Pin 11<br>Colore/RGB Pin 12 |
| IC811 Pin 31 |

## (D) 1. Funktionshinweise ZEILEN-NETZ-TEIL

Beim Zeilen-Netz-Teil (ZNT) handelt es sich um ein neuartiges, synchronisiertes Schaltnetzteil mit kombinierter Horizontal-Endstufenschaltung und nur einer Netztrennstelle im ZNT-Trafo (TR 665). Dieser ermöglicht durch die gewählte Wicklungsanordnung (Patent.) große Laständerungen und einen einfachen Stand By-Betrieb (Patent.) über den Ablenktransistor T521 bzw. das IC526.

**Einschaltvorgang über Netztaste**

Der T661 liegt über die Primärseite des Trafos TR665 und D621 an Netzspannung und wird im Zeilenrhythmus geschaltet. Dieser Zeilenrhythmus gesteuert durch IC655 (PIN 15) erzeugt auf der Sekundärseite die Spannung + M (+ B, + H) für die Kleinsignalversorgung und das IC526.

Sobald IC811 eingeschwungen ist wird über T861 das Einschaltsignal (H-Pegel) an das IC526 (PIN6) gegeben. Der vorher ständig leitende T521 wird periodisch angesteuert und gibt Triggerimpulse an den Synchron-Eingang von IC655 (PIN 12). Dort wird der Hochlauf in den Normalbetrieb eingeleitet. Die lastabhängige Nachsteuerung zur Stabilisierung des Netzteils übernimmt die Referenzspannung an PIN 10, PIN2 dient zur Spannungsversorgung.

Bei Stand by (Bereitschaft) wird über IC811 der PIN6 des IC526 auf low gesetzt. PIN 1 des IC526 wird konstant high und steuert T521 wie beim Einschaltvorgang voll durch. Dies entspricht einem Kurzschluß des Zeilenkreises und über die fehlenden Triggerimpulse an PIN 12 schaltet IC655 auf Stand by.

Bei Stand by übernimmt nur PIN2 die Regelung und Spannungsversorgung von IC655.

## 2. Service-Hinweise für ZEILEN-NETZ-TEIL

Gerät mit Netztrenntransformator betreiben. Primärseite des Zeilen-Netz-Teils liegt an Netzpotential!
Bei Fehlfunktionen des Zeilen-Netz-Teils nach folgendem Suchschema verfahren:

1. Kollektor/Emitter T 521 überbrücken (entspricht stand by)
2. Anlaufspannung über R641 Pin18 IC655 = ca. 13V
3. Startspannung über D647 Pin2 IC655 = 10,5V
4. Referenzspannung Pin 17 IC655 = 6V
5. Oszillatorfrequenz Pin15 IC655 = 2,5 $V_{ss}$, 15,625 kHz
6. + M = ca. 11V (stand by)
   + H = 5V
7. + C = < 12V
   + B = < 2V (undefiniert bei stand by)
8. C626 muß vor Wechsel des IC655 entladen sein.
9. Netzteil-Regelbereich: 140-270V.

## (GB) 1. Short Description of the Line Mains Supply Unit

The line mains supply unit (ZNT) is a newly designed and synchronized switch-mode mains supply unit with combined horizontal final-stage circuit and just one mains isolating point in the ZNT transformer (TR665). Due to the chosen arrangement of windings (patent) the transformer allows large load variations and easy stand-by operation (patent) via the deflecting transistor T521 or IC526

**Process on operation of power button.**

T661 is connected to the mains voltage via the primary side of transformer TR665 and D621 and is connected into the circuit in line rhythm. This line rhythm produced by IC655 (pin 15) generates the + M (+ B, + H) voltage at the secondary side for the supply of low-level signals and for IC526. After the transient response time of IC811 the switch-on signal (H level) is supplied via T861 to IC526 (pin6). The previously continuously conducting T521 is now subject to cyclical control and applies trigger pulses to the synchronous input of IC655 (pin 12) where the necessary voltage increase for normal operation is initiated. The reference voltage at pin 10 provides the load-dependent compensation for stabilizing the mains supply; pin 2 is used for power supply.

In the stand-by mode, pin 6 of IC526 is set to low via IC811. In this way, pin 1 of IC526 is at a constant high and drives transistor T521 at full load as is the case on switch-on. This is equivalent to a short circuit of the line deflecting stage and IC655 switches to stand-by due to the lack of trigger pulses at pin 12.

In the stand-by mode, only pin 2 provides the control and voltage supply from IC655.

## 2. Service Instructions for Line Mains Supply Unit

Operate the unit via the mains isolating transformer. The primary side of the Line Mains Supply Unit is connected to the mains potential!
Troubleshooting in case of line mains supply failures:

1. Bypass collector/emitter T521 (= stand by)
2. Initial voltage via R641, pin 18, IC655 = 13V approx.
3. Starting voltage via D647, pin 2, IC655 = 10.5V
4. Reference voltage, pin 17, IC655 = 6V
5. Oscillator frequency, pin 15, IC655 = 2.5 $V_{pp}$, 15,625 kHz
6. + M = 11 V approx. (stand-by)
   + H = 5V
7. + C = < 12 V
   + B = < 12 V (not defined in stand-by)
8. Be sure to discharge C626 before replacing IC655.
9. Mains unit range of adjustment: 140-270V

## (I) 1. Breve descrizione dell'alimentatore di riga

L'alimentatore di riga (ZNT) è un alimentatore di commutazione sincronizzato di nuova concezione con un circuito di stadio finale orizzontale combinato ed un solo punto di separazione di rete nel trasformatore ZNT (TR665). Esso consente, grazie alla costruzione adottata per l'avvolgimento, grandi variazioni del carico ed un semplice funzionamento stand-by per mezzo di T521 di deflessione e risp.te di IC526.

**Accensione con l'interruttore di rete**

T661 è collegato alla tensione di rete attraverso il primario del trasformatore TR665 e D621 e viene commutato al ritmo delle righe. Questo ritmo, su comando di IC655 (pin 15), genera sul secondario la tensione + M (+ B, + H) per l'alimentazione di alcune sezioni circuitali e di IC526.
Quando IC811 è attivo, attraverso T861, il segnale di accensione (livello H) giunge a IC526 (pin 6). T521, prima costantemente in conduzione, viene ora comandato periodicamente ed invia impulsi di trigger all'ingresso sincrono di IC655 (pin 12). La presenza degli impulsi di trigger fa commutare l'integrato IC655 da funzionamento stand-by a funzionamento normale. La regolazione, in funzione del carico, per la stabilizzazione dell'alimentatore viene effettuata dalla tensione di riferimento al pin 10. La tensione d'alimentazione è disponibile al pin 2.
In stand-by (posizione d'attesa), tramite IC811, il pin 6 di IC526 viene mandato a livello LOW. Il pin 1 di IC526 è invece costantemente su HIGH. In questo modo T521 conduce completamente come nel processo d'accensione. Ciò rappresenta un cortocircuito del circuito di riga e, tramite gli impulsi di trigger mancanti al pin 12, IC655 commuta in stand-by.
Questa situazione prevede che solo sul pin 2 sia presente la tensione di regolazione e di alimentazione di IC655.

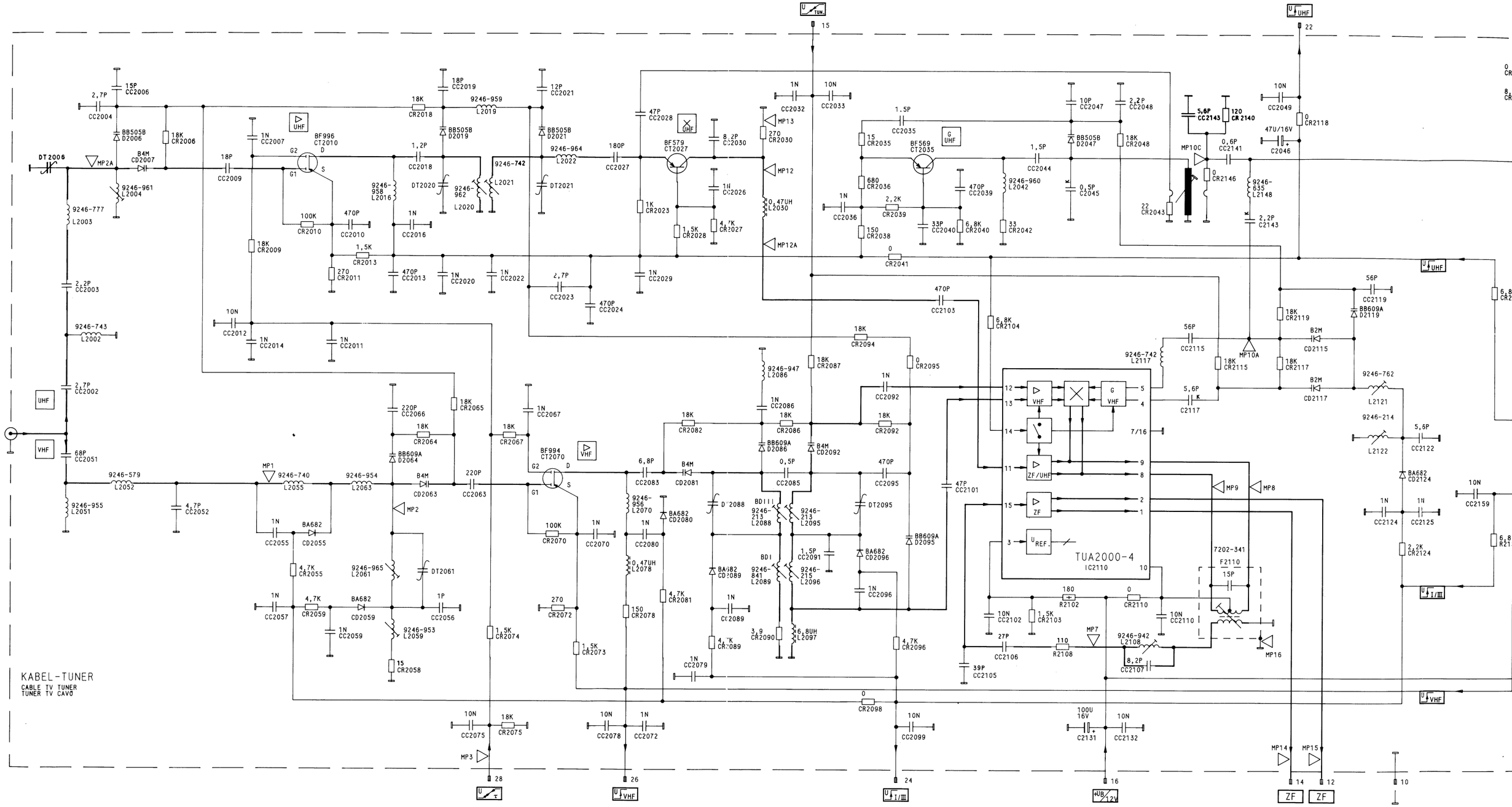
## 2. Istruzioni di servizio per l'alimentatore di riga

Alimentare l'apparecchio con un trasformatore separatore di rete. Il lato primario dell'alimentatore è a potenziale di rete!
Se l'alimentatore di riga funziona erroneamente, ricercare il guasto nel seguente modo:

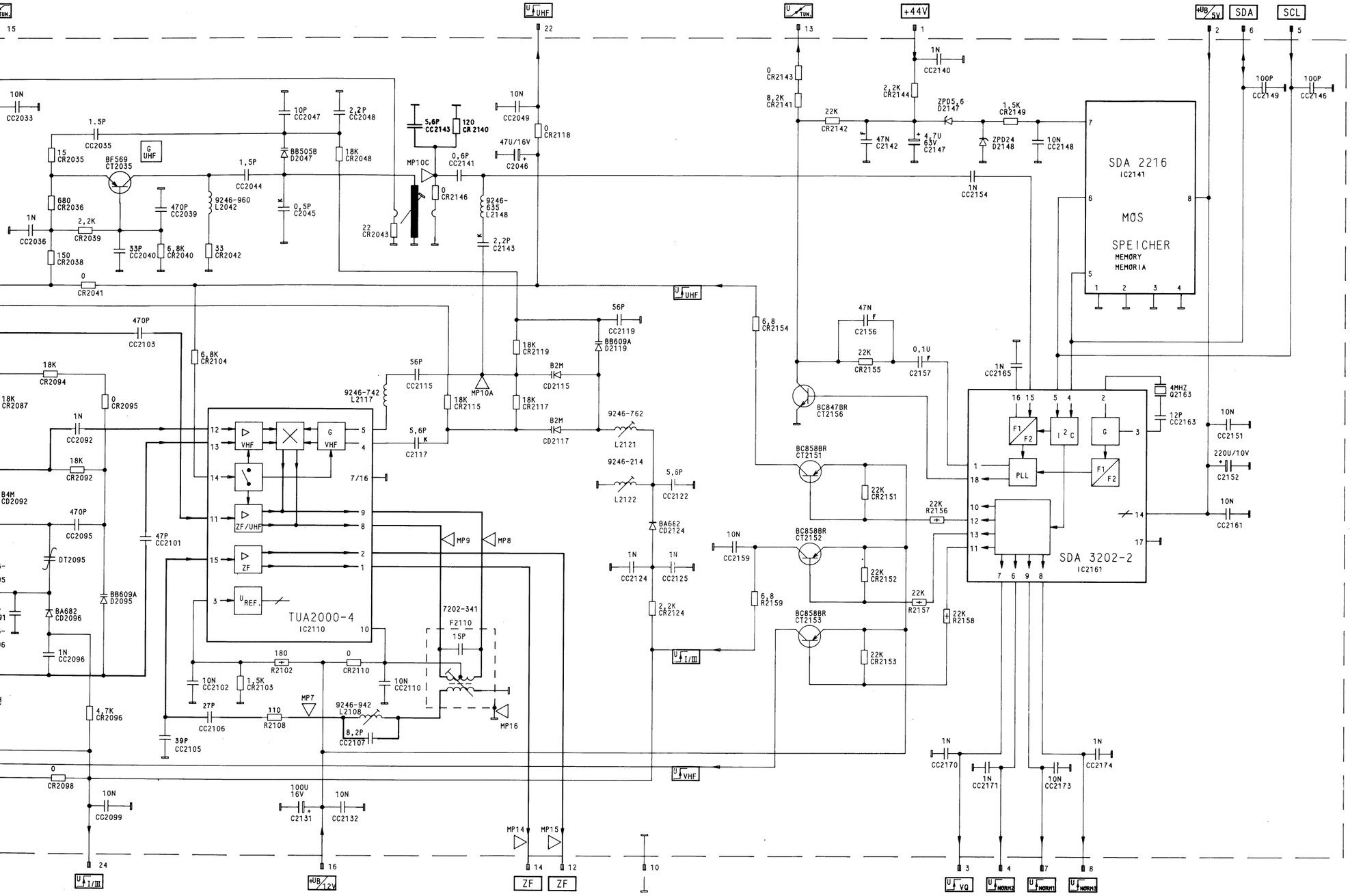
1. Cortocircuitare collettore/emettitore di T 521 (corrisponde a stand-by).
2. Tensione di avviamento, tramite R641, pin 18 IC655 = ca. 13V.
3. Tensione di start.
4. Tensione di riferimento, pin 17 IC655 = 6V.
5. Frequenza dell'oscillatore, pin 15 IC655 = 2,5 $V_{pp}$, 15,625 kHz.
6. + M = ca. 11 V (stand-by)
   + H = 5V
7. + C = < 12 V (indefinito in stand-by)
   + B = < 2 V
8. C 626 deve essere scarico prima di cambiare IC655.
8. Campo di regolazione dell'alimentatore: 140-270V.

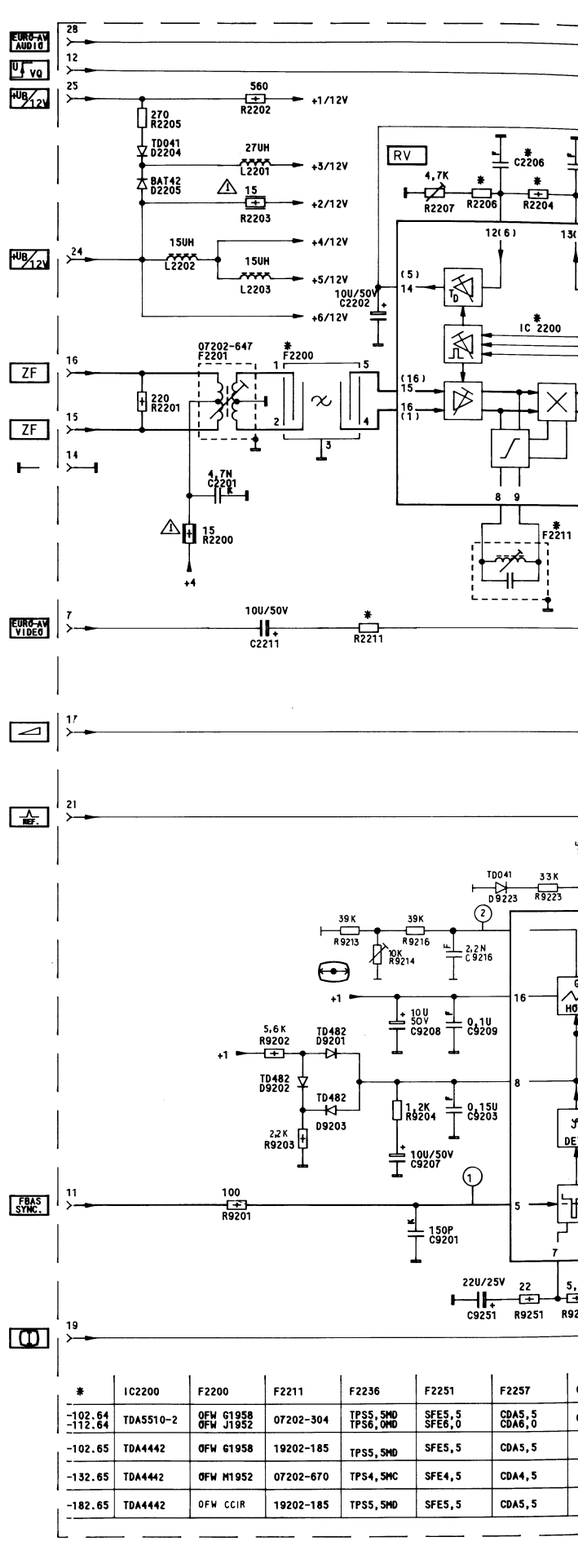


## Notizen:

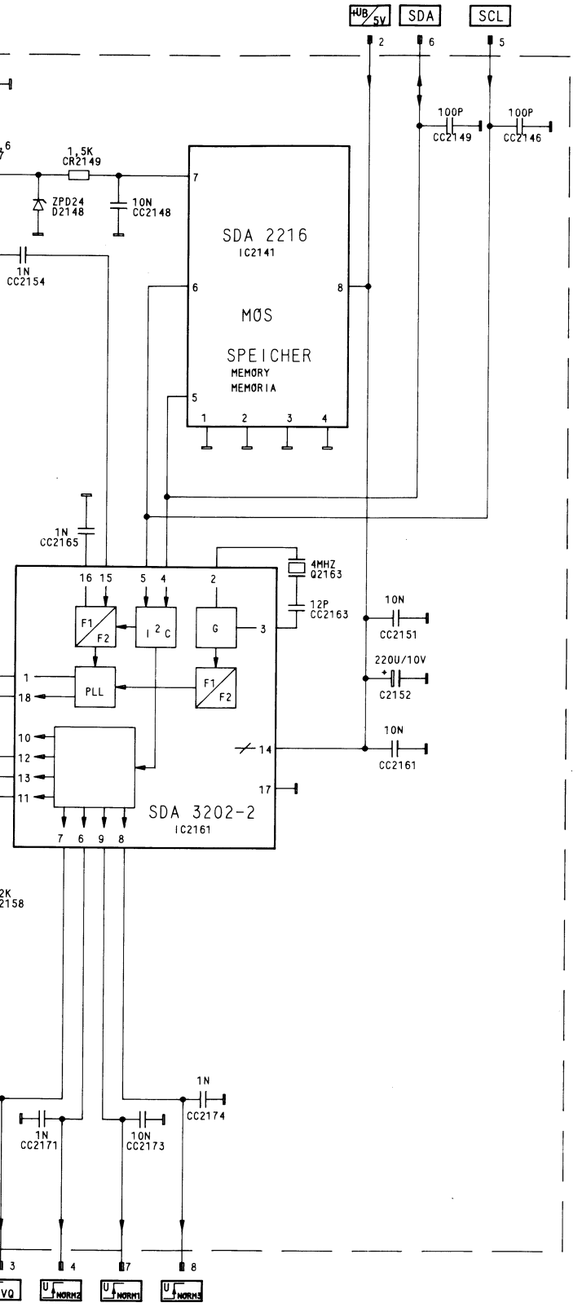


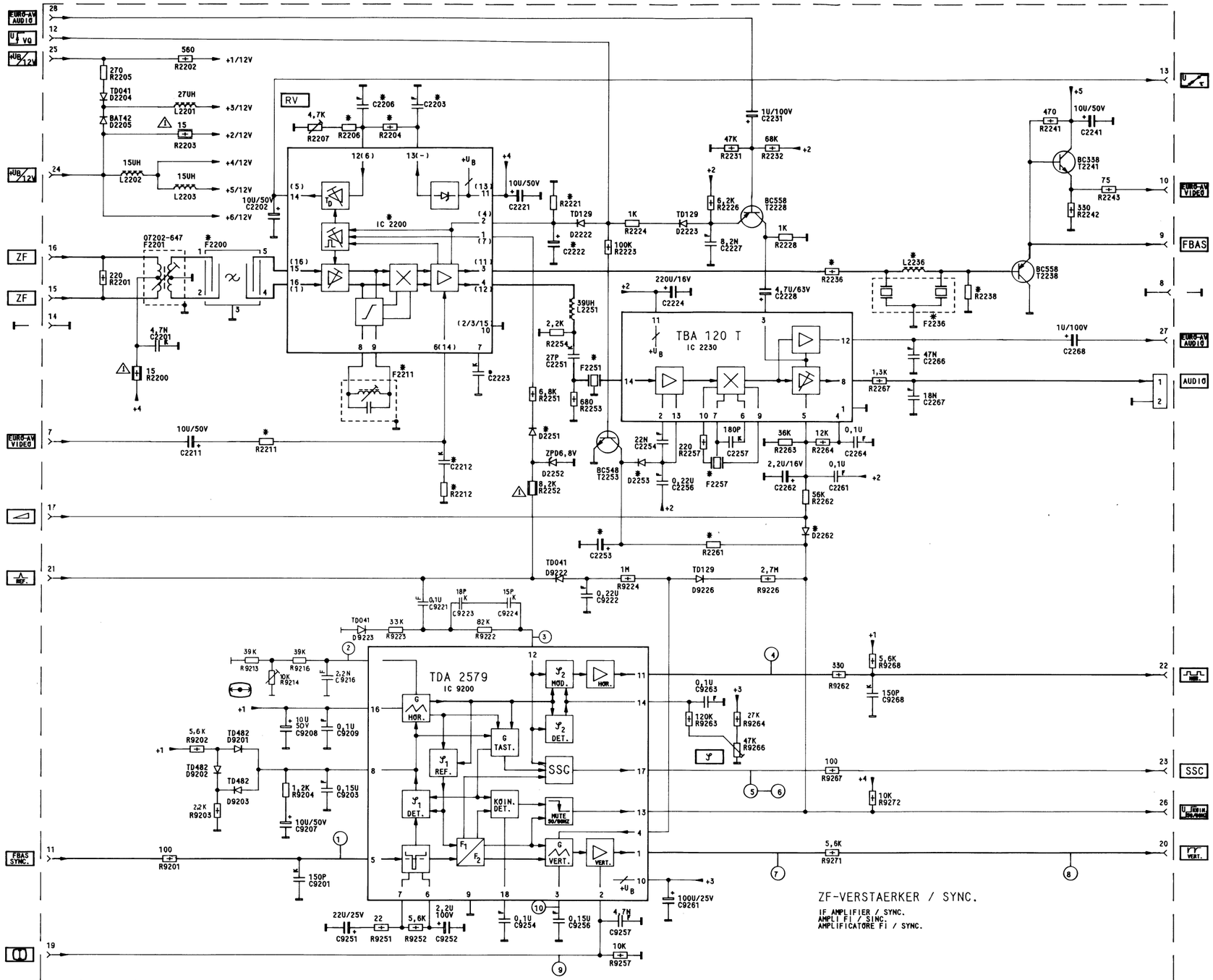

**Kein Anpassungsabgleich bei Austausch der Steckkarte notwendig**
**When replacing the plug-in board, no alignment is necessary**
**Non è necessaria nessuna taratura di adattamento dopo la sostituzione di una scheda ad innesto**

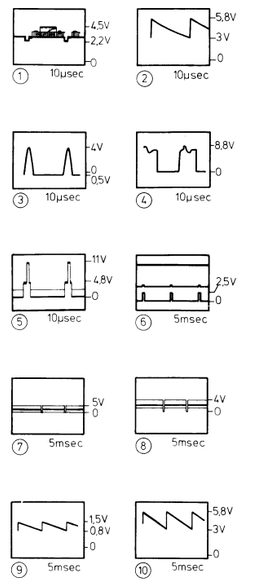


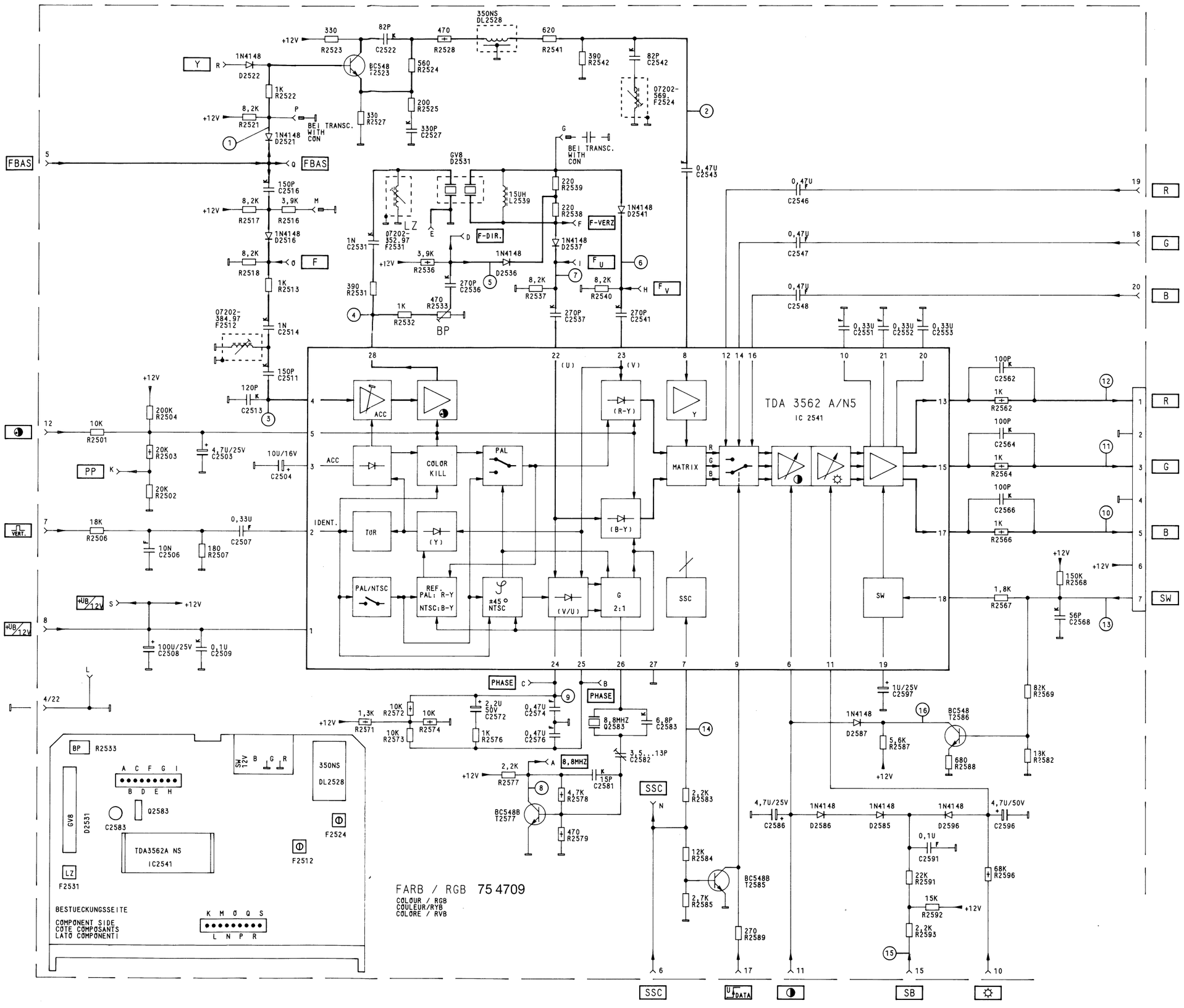

| * | IC2200 | F2200 | F2211 | F2236 | F2251 | F2257 |
|---|---|---|---|---|---|---|
| -102.64<br>-112.64 | TDA5510-2 | OFW G1958<br>OFW J1952 | 07202-304 | TPS5,SMD<br>TPS6,OMD | SFE5,5<br>SFE6,0 | CDA5,5<br>CDA6,0 |
| -102.65 | TDA4442 | OFW G1958 | 19202-185 | TPS5,SMD | SFE5,5 | CDA5,5 |
| -132.65 | TDA4442 | OFW M1952 | 07202-670 | TPS4,SMC | SFE4,5 | CDA4,5 |
| -182.65 | TDA4442 | OFW CCIR | 19202-185 | TPS5,SMD | SFE5,5 | CDA5,5 |



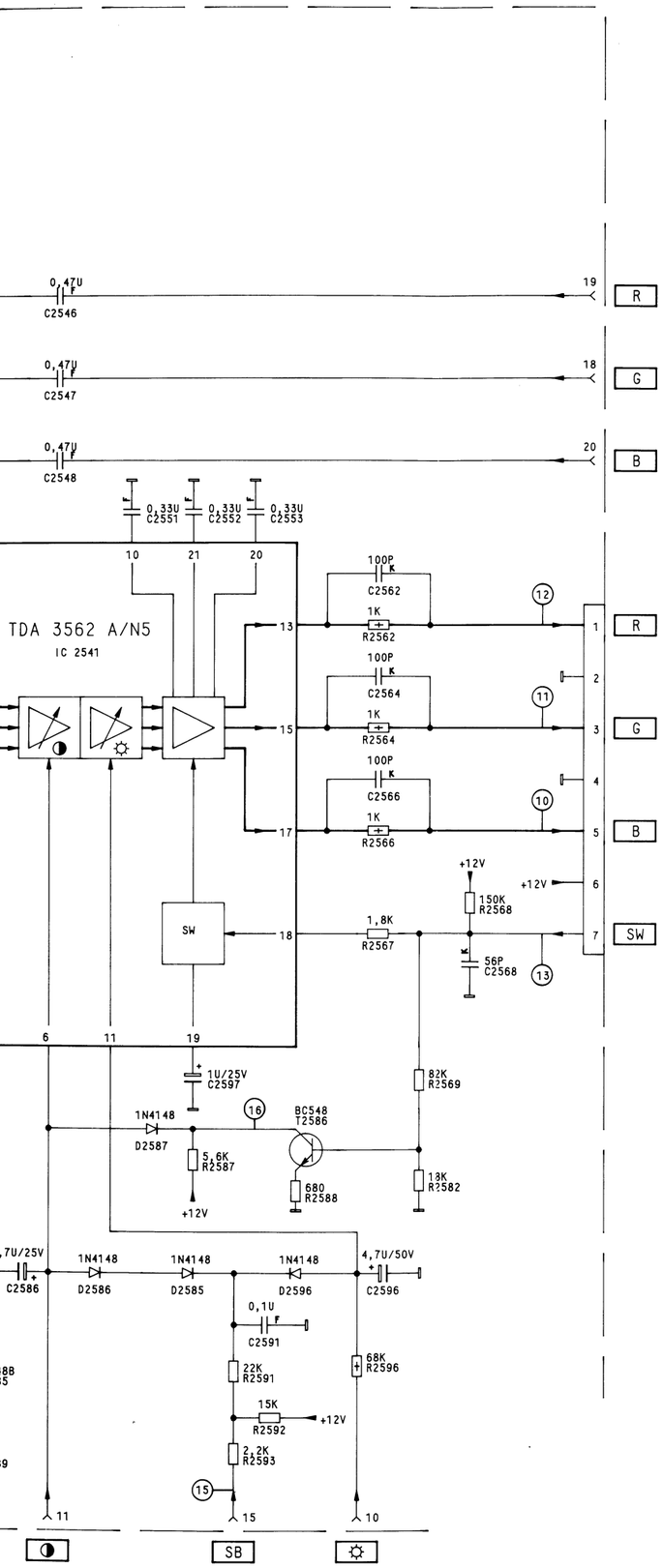

| * | IC2200 | F2200 | F2211 | F2236 | F2251 | F2257 | C2203 | R2204 | C2206 | R2206 | R2211 | C2212 | R2221 | C2222 | C2223 | R2236 | R2238 | D2251 | C2253 | D2253 | R2261 | D2262 | R2212 | L2236 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| -102.64<br>-112.64 | TDA5510-2 | OFW G1958<br>OFW J1952 | 07202-304 | TPS5,5MD<br>TPS6,0MD | SFE5,5<br>SFE6,0 | CDA5,5<br>CDA6,0 | 0,1U | 5,6K | 4,7N | 1,8K | 330 | | — | 1U/63V | 1N | 220 | 1,1K | — | 2,2U/63V | TD129 | 47K | TD129 | — | 15UH<br>12UH |
| -102.65 | TDA4442 | OFW G1958 | 19202-185 | TPS5,5MD | SFE5,5 | CDA5,5 | — | — | — | ●—● | 470 | 56P | 100K | 4,7U | — | 390 | 1,5K | TD129 | 2,2U/63V | TD129 | 47K | TD129 | 680 | 15UH |
| -132.65 | TDA4442 | OFW M1952 | 07202-670 | TPS4,5MC | SFE4,5 | CDA4,5 | — | — | — | ●—● | 470 | 56P | 100K | 4,7U/63V | — | 300 | 1,1K | TD129 | — | ●—● | — | — | 680 | 15UH |
| -182.65 | TDA4442 | OFW CCIR | 19202-185 | TPS5,5MD | SFE5,5 | CDA5,5 | — | — | — | ●—● | 470 | 56P | 100K | 4,7U/63V | — | 390 | 1,5K | TD129 | — | ●—● | — | TD 129 | 680 | 15UH |




1. Weißabgleich
   - FuBK-Testbild einspeisen.
   - ◑ min., ☼ nom., ◑ max., einstellen.
   - Regler VR und VG (Bildrohrplatte) so
     färbungen in den Grauwerten sichtbar
2. Sperrpunktabgleich
   Eine manuelle Einstellung ist nicht möglic
   automatische Dunkelstromregelung besit
   punkts (Oszilloskop erforderlich).
   - FuBK-Testbild einspeisen.
   - ◑ min., ☼ nom., ◑ min., einstellen.
   - Tastkopf an den Kollektoren der Transist
     hängen (Bildrohrplatte). Die Schwarzw
     signale liegen bei 90 – 100 V (15", 16") u
3. Einstellungen im Farbkanal
   - FuBK-Testbild einspeisen.
   - ◑ nom., ☼ nom., ◑ nom. einstellen.
   - Am IC TDA 3562 Pin 1 mit Pin 5 und Pin 24
   - Mit Trimmer 2582 die durchlaufenden Fa
     gen, Kurzschlußbrücken entfernen.
   - Tastkopf am Pin 17 des IC TDA 3562 ein
     Mit Regler BP und Spule LZ die Doppe
     Deckung bringen.

1. White level adjustment.
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to max.
   - Adjust presets VR and VG (CRT socket
     does not show any colouration.
2. Adjustment of cut-off point.
   Manual adjustment is not possible, as the
   automatic dark current control circuit.
   To check cut-off point (oscilloscope requir
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to min.
   - Connect test probe to collectors of T741
     board).
     The black levels of the three cathode sig
     (15", 16") and 140 – 150 V (18", 20").
3. Colour oscillator and PAL adjustments.
   - Inject colour bar test pattern.
   - Adjust to ◑, ☼, ◑ suit view conditions
   - On the IC TDA 3562, short circuit pin 1 wit
   - With trimmer 2582 adjust the until colo
     short circuits.
   - Attach probe to pin 17 of the IC TDA 35
   - With control BP and coil LZ, adjust the do
     to coincide.

1. Taratura del bianco
   - Applicare un monoscopio FuBK.
   - Regolare ◑ al minimo, ☼ sul valore no
   - Con VR e VG (piastra cinescopio) elimina
     lore.
2. Taratura del punto di blocco.
   Una regolazione manuale non è possibile, po
   pora una regolazione automatica della corr
   Controllo del punto di blocco (è necessari
   - Applicare un monoscopio FuBK.
   - Regolare ◑ al minimo, ☼ sul valore no
   - Collegare la sonda ai collettori dei tran
     (piastra cinescopio).
     Valore nero dei tre segnali catodici 90 – 1
     (18", 20").
3. Regolazioni dell'oscillatore colore e PAL
   - Applicare un monoscopio FuBK.
   - Regolare ◑, ☼ ed ◑ sul valore nomina
   - Cortocircuitare i terminali 1 e 5 ed i terr
     3562.
   - Fermare le barre colorate scorrevoli con
     cortocircuiti.
   - Collegare la sonda dell'oscilloscopio al
     3562.
     Con il regolatore BP e la bobina LZ porta
     doppie del segnale B.

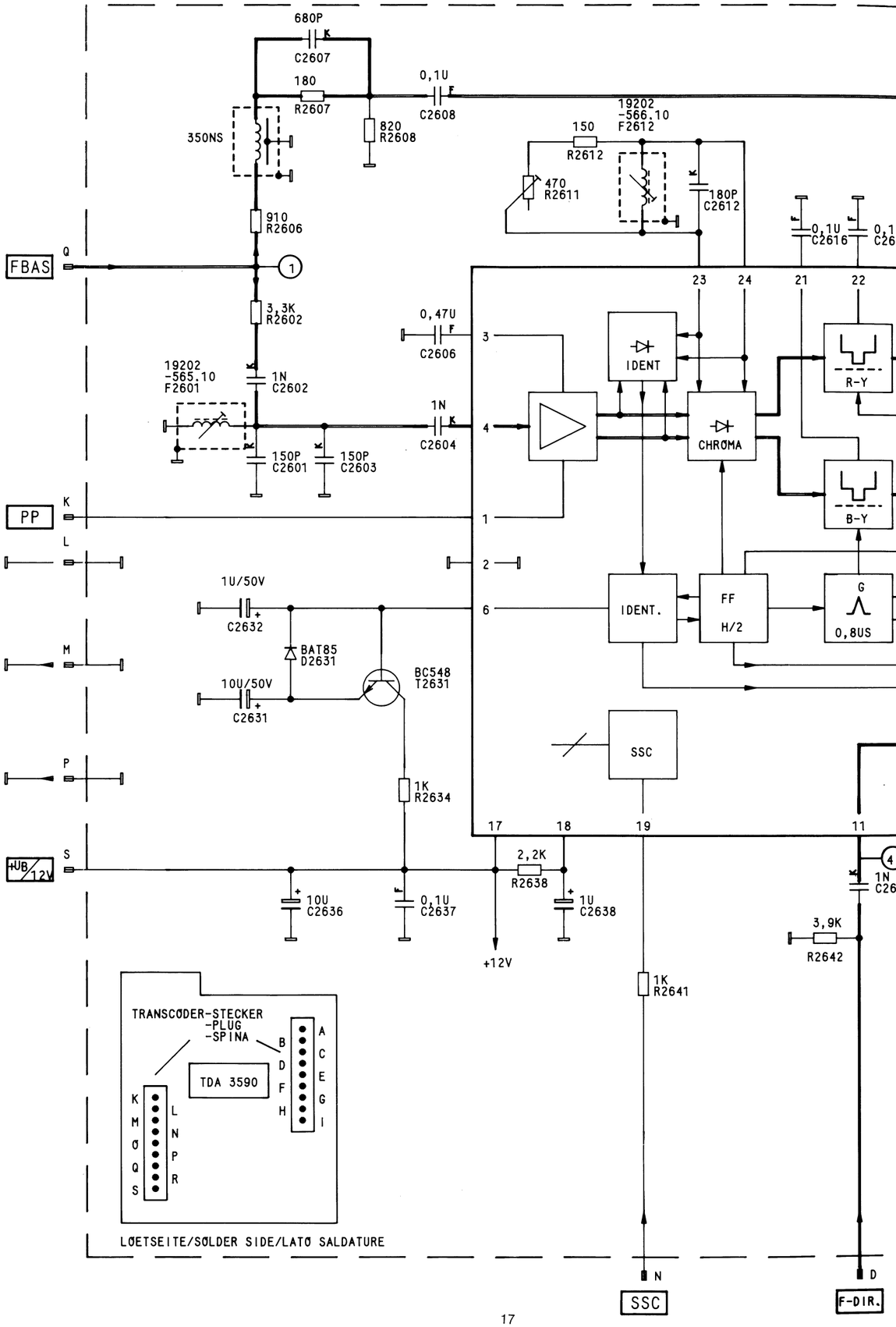


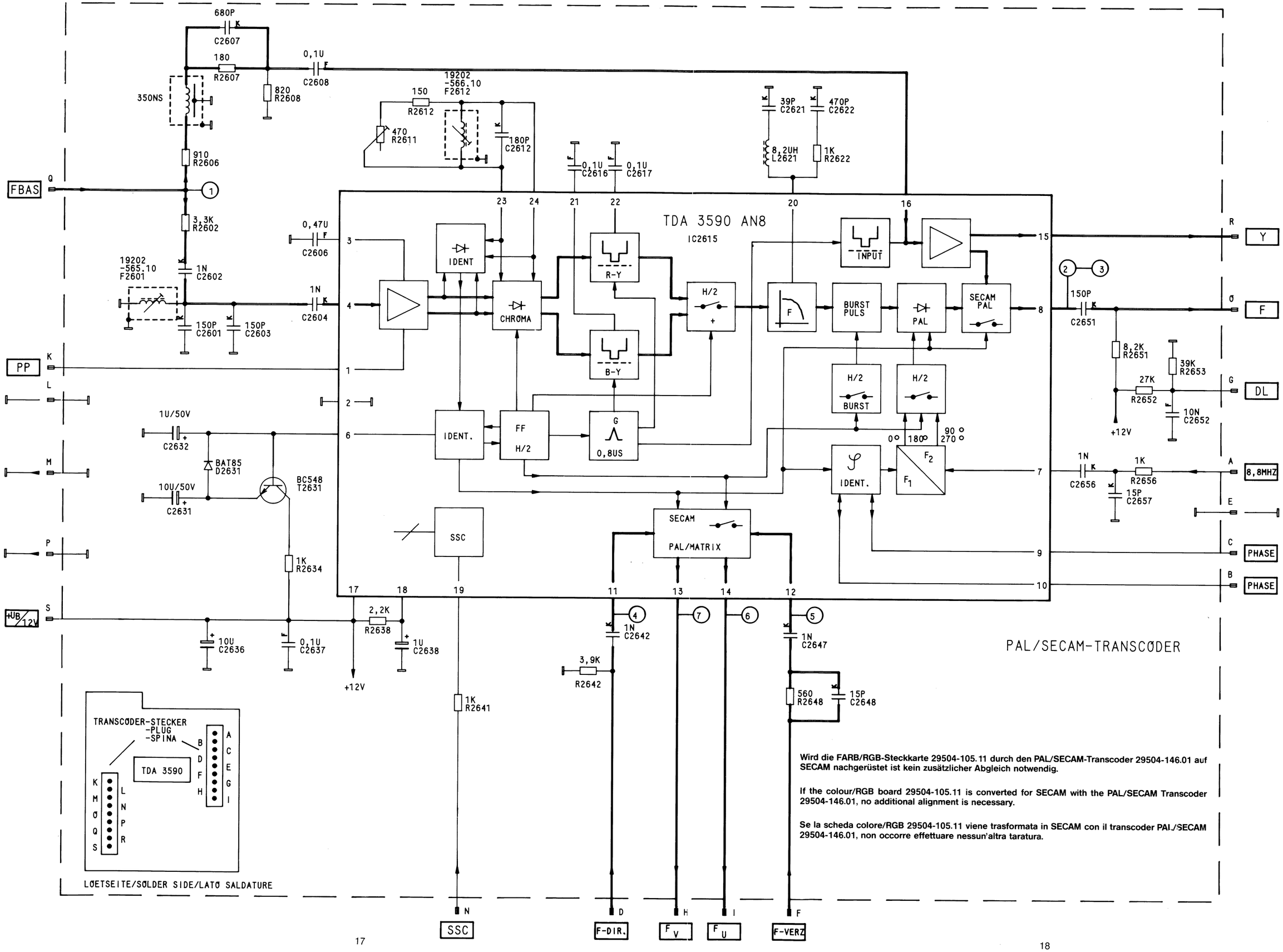

1. Weißabgleich
   - FuBK-Testbild einspeisen.
   - ◑ min., ☼ nom., ◑ max., einstellen.
   - Regler VR und VG (Bildrohrplatte) so einstellen, daß keine Verfärbungen in den Grauwerten sichtbar sind.
2. Sperrpunktabgleich
   Eine manuelle Einstellung ist nicht möglich, da die Steckkarte eine automatische Dunkelstromregelung besitzt. Kontrolle des Sperrpunkts (Oszilloskop erforderlich).
   - FuBK-Testbild einspeisen.
   - ◑ min., ☼ nom., ◑ min., einstellen.
   - Tastkopf an den Kollektoren der Transistoren T741, T761, T781 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei 90 – 100 V (15", 16") und 140 – 150 V (18", 20").
3. Einstellungen im Farbkanal
   - FuBK-Testbild einspeisen.
   - ◑ nom., ☼ nom., ◑ nom. einstellen.
   - Am IC TDA 3562 Pin 1 mit Pin 5 und Pin 24 mit Pin 25 kurzschließen.
   - Mit Trimmer 2582 die durchlaufenden Farbbalken zum Stehen bringen, Kurzschlußbrücken entfernen.
   - Tastkopf am Pin 17 des IC TDA 3562 einhängen.
     Mit Regler BP und Spule LZ die Doppelbilder des B-Signals zur Deckung bringen.

1. White level adjustment.
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to max.
   - Adjust presets VR and VG (CRT socket board) so that the picture does not show any colouration.
2. Adjustment of cut-off point.
   Manual adjustment is not possible, as the circuit board employs an automatic dark current control circuit.
   To check cut-off point (oscilloscope required), proceed as follows:
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to min.
   - Connect test probe to collectors of T741, T761, T781 (CRT socket board).
     The black levels of the three cathode signals should be 90 – 100 V (15", 16") and 140 – 150 V (18", 20").
3. Colour oscillator and PAL adjustments.
   - Inject colour bar test pattern.
   - Adjust to ◑, ☼, ◑ suit view conditions.
   - On the IC TDA 3562, short circuit pin 1 with pin 5 and pin 24 with 25.
   - With trimmer 2582 adjust the until colours are correct. Remove short circuits.
   - Attach probe to pin 17 of the IC TDA 3562.
   - With control BP and coil LZ, adjust the double images of the B signal to coincide.

1. Taratura del bianco
   - Applicare un monoscopio FuBK.
   - Regolare ◑ al minimo, ☼ sul valore nominale e ◑ al massimo.
   - Con VR e VG (piastra cinescopio) eliminare eventuali macchie di colore.
2. Taratura del punto di blocco.
   Una regolazione manuale non è possibile, poichè questa scheda incorpora una regolazione automatica della corrente d'interdizione.
   Controllo del punto di blocco (è necessario un oscilloscopio):
   - Applicare un monoscopio FuBK.
   - Regolare ◑ al minimo, ☼ sul valore nominale e ◑ al minimo.
   - Collegare la sonda ai collettori dei transistori T741, T761, T781 (piastra cinescopio).
     Valore nero dei tre segnali catodici 90 – 100 V (15", 16") e 140 – 150 V (18", 20").
3. Regolazioni dell'oscillatore colore e PAL
   - Applicare un monoscopio FuBK.
   - Regolare ◑, ☼ ed ◑ sul valore nominale.
   - Cortocircuitare i terminali 1 e 5 ed i terminali 24 e 25 dell'IC TDA 3562.
   - Fermare le barre colorate scorrevoli con il trimmer 2582 e togliere i cortocircuiti.
   - Collegare la sonda dell'oscilloscopio al terminale 17 dell'IC TDA 3562.
     Con il regolatore BP e la bobina LZ portare a copertura le immagini doppie del segnale B.








PAL/SECAM-TRANSCØDER

**Wird die FARB/RGB-Steckkarte 29504-105.11 durch den PAL/SECAM-Transcoder 29504-146.01 auf SECAM nachgerüstet ist kein zusätzlicher Abgleich notwendig.**

**If the colour/RGB board 29504-105.11 is converted for SECAM with the PAL/SECAM Transcoder 29504-146.01, no additional alignment is necessary.**

**Se la scheda colore/RGB 29504-105.11 viene trasformata in SECAM con il transcoder PAL/SECAM 29504-146.01, non occorre effettuare nessun'altra taratura.**

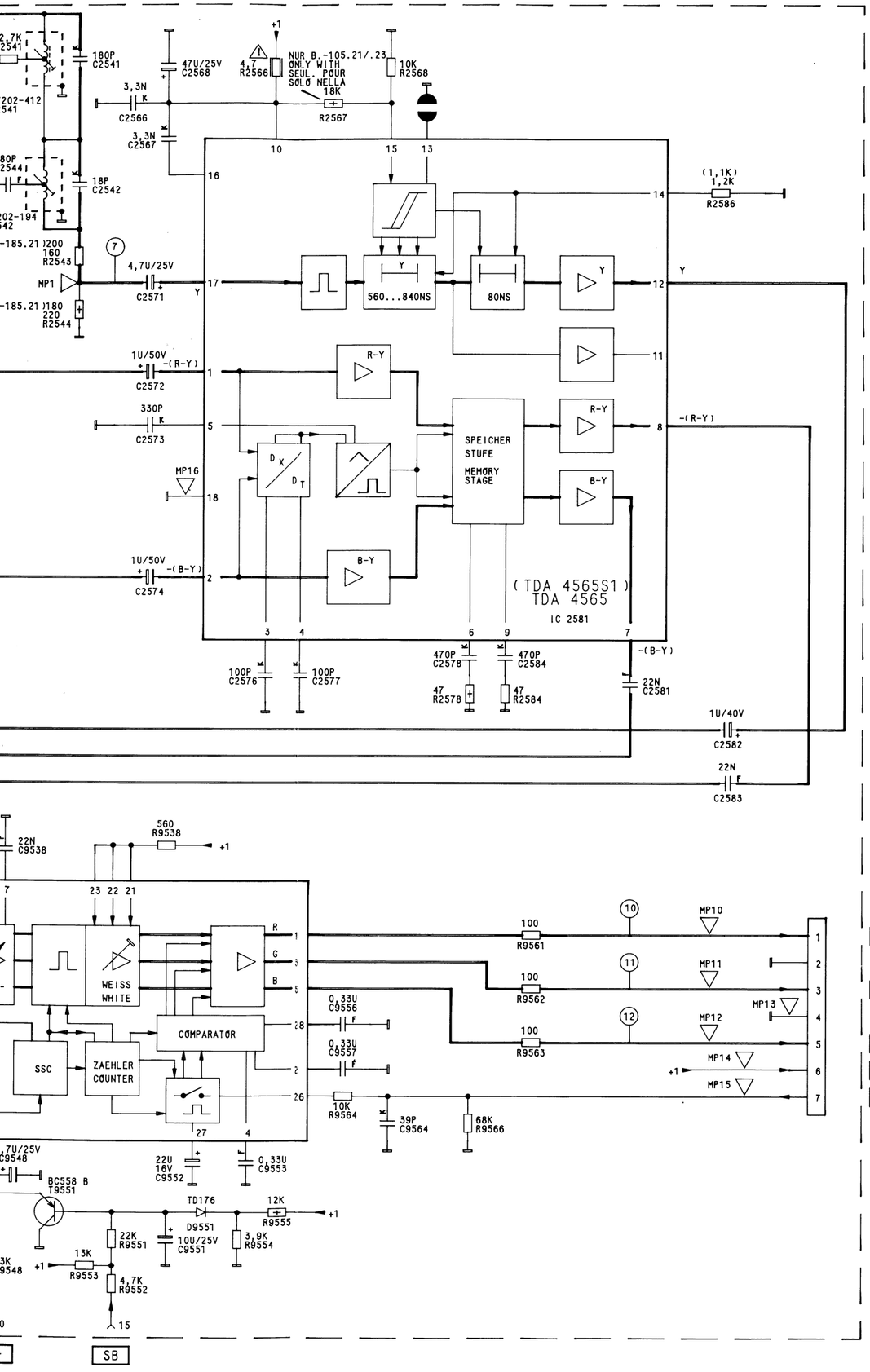
FARB-RGB 75 4073

COLOUR / RGB
COULEUR / RVB
COLORE / RVB

TDA 4555
IC 2555

TDA 3505
IC 9531

NUR B.-105.21/.23 ONLY WITH SEUL. POUR SOLO NELLA

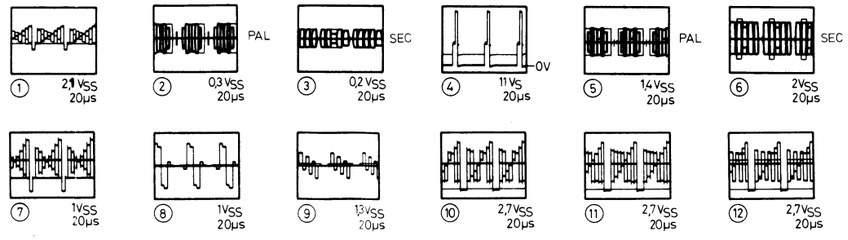


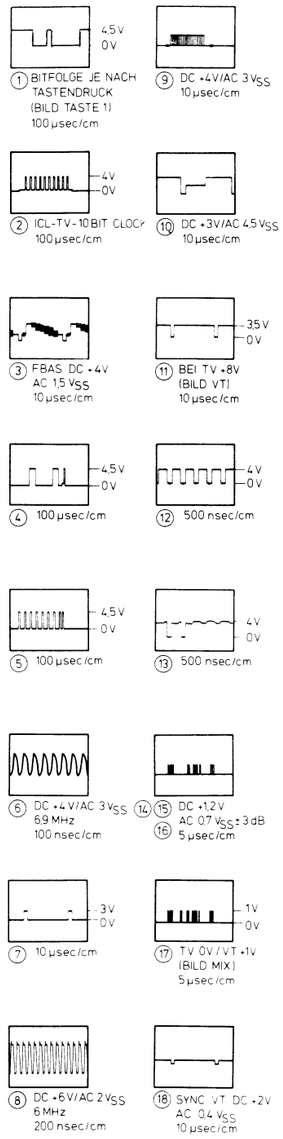


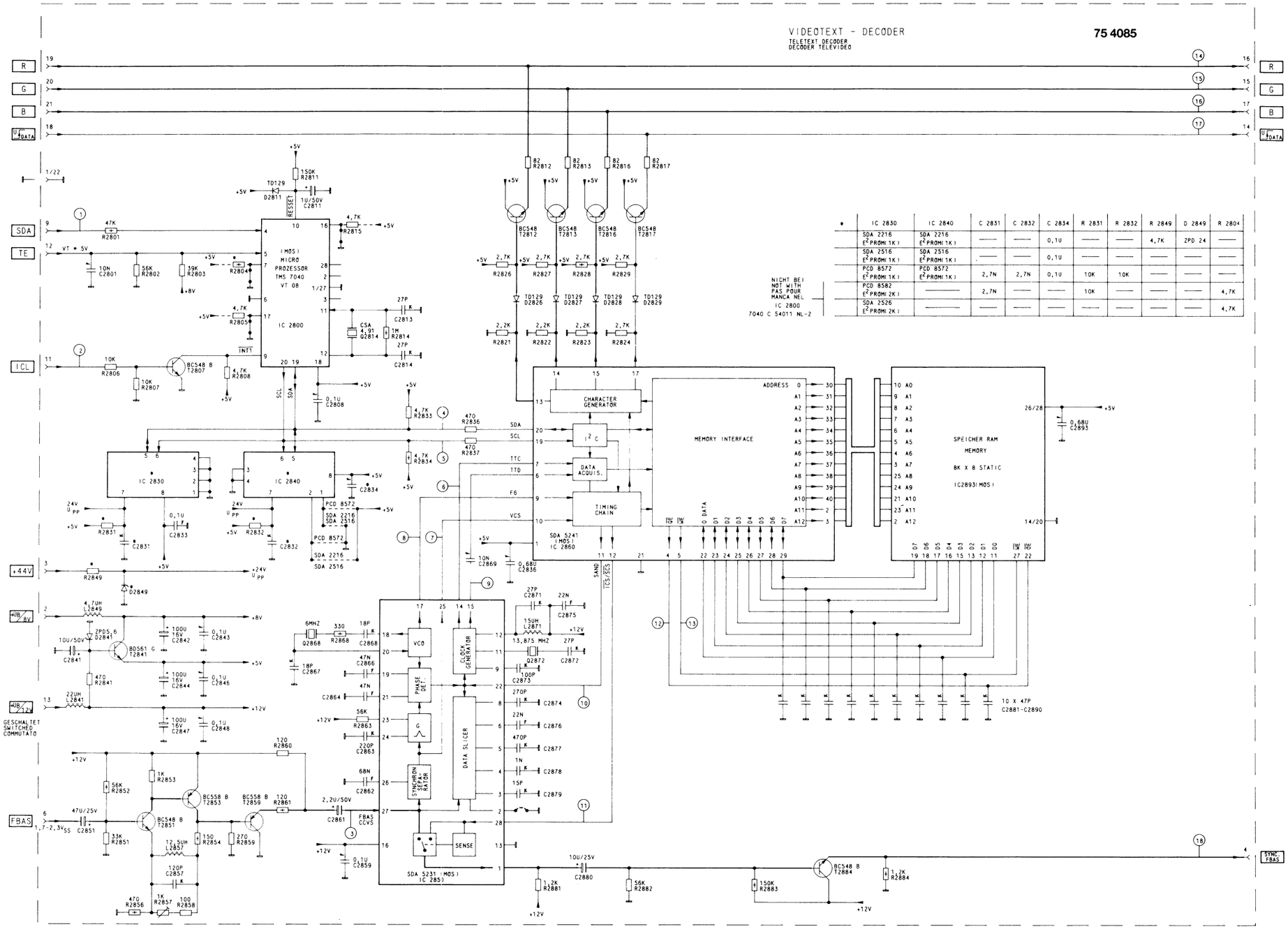

1. Weißabgleich
   - FuBK-Testbild einspeisen.
   - ◑ min., ☼ nom., ◑ max., einstellen.
   - Regler VR und VG (Bildrohrplatte) so einstellen, daß keine Verfärbungen in den Grauwerten sichtbar sind.
2. Sperrpunktabgleich
   Eine manuelle Einstellung ist nicht möglich, da die Steckkarte eine automatische Dunkelstromregelung besitzt. Kontrolle des Sperrpunkts (Oszilloskop erforderlich).
   - FuBK-Testbild einspeisen.
   - ◑ min., ☼ nom., ◑ min., einstellen.
   - Tastkopf an den Kollektoren der Transistoren T741, T761, T781 anhängen (Bildrohrplatte). Die Schwarzwerte der drei Kathodensignale liegen bei 90 – 100 V (15", 16") und 140 – 150 V (18", 20").
3. Einstellungen im Farbkanal
   - PAL-Testbild einspeisen.
   - FK nom., H nom., K max. einstellen.
   - IC-Pin 28 vom TDA 4555 mit + 12 V verbinden.
   - IC-Pin 17 vom TDA 4555 mit Masse verbinden.
   - Mit Trimmer C 9516 die durchlaufenden Farbbalken zum Stehen bringen.
   - Kurzschlußbrücken entfernen.
   - Tastkopf an MP 12, mit Regler BP und Spule LZ die Doppelbilder des B-Signals zur Deckung bringen.
   - SECAM-Testbild einspeisen.
   - Tastkopf an Pin 1 vom TDA 4555 anschließen, mit Spule DR Nullinie des (R-Y)-Signals auf Zeilenaustastniveau bringen.
   - Tastkopf an Pin 3 vom TDA 4555 anschließen, mit Spule DB Nullinie des (B-Y)-Signals auf Zeilenaustastniveau bringen.
   - Spule F 2521 so einstellen, daß das (B-Y)-Signal keine Überschwinger hat.

1. White level adjustment.
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to max.
   - Adjust presets VR and VG (CRT socket board) so that the picture does not show any colouration.
2. Adjustment of cut-off point.
   Manual adjustment is not possible, as the circuit board employs an automatic dark current control circuit.
   To check cut-off point (oscilloscope required), proceed as follows:
   - Display colour bar test pattern.
   - Set ◑ to min., ☼ to nom., ◑ to min.
   - Connect test probe to collectors of T741, T761, T781 (CRT socket board).
     The black levels of the three cathode signals should be 90 – 100 V (15", 16") and 140 – 150 V (18", 20").
3. Adjustments in chroma channel.
   - Display PAL test pattern.
   - Adjust colour level and brightness to nominal value, contrast to maximum.
   - Connect pin 28 of IC TDA 4555 to + 12 V supply.
   - Connect pin 17 to IC TDA 4555 to chassis.
     Adjust trimmer C 9516 for stationary pattern in colour bars.
   - Remove wire links.
   - Connect test probe to test point MP 12. Bring the double image produced by the B signal to coincidence by adjusting the preset BP and the coil LZ.
   - Display SECAM test pattern.
   - Connect test probe to pin 1 of IC TDA 4555.
   - Use coil DR to align zero level of the (R-Y) signal with the line black level.
   - Connect test probe to pin 3 of IC TDA 4555.
   - With coil DB to align zero level of the (B-Y) signal with the line black level.
   - Adjust coil F 2521 so that the (B-Y) signal is free of overshooting.

1. Taratura del bianco
   - Applicare un monoscopio FuBK
   - Regolare ◑ al minimo, ☼ sul valore nominale e ◑ al massimo.
   - Con VR e VG (piastra cinescopio) eliminare eventuali macchie di colore.
2. Taratura del punto di blocco.
   Una regolazione manuale non è possibile, poichè questa scheda incorpora una regolazione automatica della corrente d'interdizione.
   Controllo del punto di blocco (è necessario un oscilloscopio):
   - Applicare un monoscopio FuBK.
   - Regolare ◑ al minimo, ☼ sul valore nominale e ◑ al minimo.
   - Collegare la sonda ai collettori dei transistori T741, T761, T781 (piastra cinescopio).
     Valore nero dei tre segnali catodici 90 – 100 V (15", 16") e 140 – 150 V (18", 20").
3. Regolazione del canale colore.
   - Applicare un monoscopio PAL.
   - Regolare FK e H sul valore nominale, K al massimo.
   - Sull'integrato TDA 4555 collegare pin 28 a + 12 V.
   - Sull'integrato TDA 4555 collegare pin 17 a massa.
     Con C 9516 fermare le barre colorate scorrevoli.
   - Togliere i cortocircuiti.
   - Collegare la sonda a MP 12, con il regolatore BP e la bobina LZ portare a copertura le immagini doppie del segnale B.
   - Applicare un monoscopio SECAM.
   - Collegare la sonda al pin 1 dell'integrato TDA 4555, con la bobina DR portare la linea zero del segnale (R-Y) sul livello della frequenza di riga.
   - Collegare la sonda al pin 3 dell'integrato TDA 4555, con la bobina DB portare la linea zero del segnale (B-Y) sul livello della frequenza di riga.
   - La bobina F 2521 applicarla così in modo che il signale (B-Y) sia chiaro.




4,5 V
0 V
(1) BITFOLGE JE NACH TASTENDRUCK (BILD TASTE 1) 100 µsec/cm
(9) DC +4V/AC 3 VSS 10 µsec/cm
4V
0V
(2) ICL-TV-10 BIT CLOCK 100 µsec/cm
(10) DC +3V/AC 4,5 VSS 10 µsec/cm
35 V
0 V
(3) FBAS DC +4V AC 1,5 VSS 10 µsec/cm
(11) BEI TV +8V (BILD VT) 10 µsec/cm
(4) 100 µsec/cm
(12) 500 nsec/cm
(5) 100 µsec/cm
(13) 500 nsec/cm
(6) DC +4 V/AC 3 VSS 6,9 MHz 100 nsec/cm
(14) (15) DC +12 V AC 0,7 VSS ± 3 dB (16) 5 µsec/cm
3 V
1 V
(7) 10 µsec/cm
(17) TV 0 V / VT +1 V (BILD MIX) 5 µsec/cm
(8) DC +6 V/AC 2 VSS 6 MHz 200 nsec/cm
(18) SYNC VT DC +2 V AC 0,4 VSS 10 µsec/cm




| * | IC 2830 | IC 2840 | C 2831 | C 2832 | C 2834 | R 2831 | R 2832 | R 2849 | D 2849 | R 2804 |
|---|---|---|---|---|---|---|---|---|---|---|
| | SDA 2216 E²PROM (1K) | SDA 2216 E²PROM (1K) | —— | —— | 0,1U | —— | —— | 4,7K | ZPD 24 | —— |
| | SDA 2516 E²PROM (1K) | SDA 2516 E²PROM (1K) | —— | —— | 0,1U | —— | —— | —— | —— | —— |
| | PCD 8572 E²PROM (1K) | PCD 8572 E²PROM (1K) | 2,7N | 2,7N | 0,1U | 10K | 10K | —— | —— | —— |
| | PCD 8582 E²PROM (2K) | —— | 2,7N | —— | —— | 10K | —— | —— | —— | 4,7K |
| | SDA 2526 E²PROM (2K) | —— | —— | —— | —— | —— | —— | —— | —— | 4,7K |

**VT-Nachrüstung und Anpassungsabgleich**

Beim Nachrüsten der Videotext-Steckkarte muß die Videotext-Steckerplatte entfernt werden (* siehe Geräteschaltbild im Service Manual).

Der Einsteller R 2857 steht bei Auslieferung auf Rechtsanschlag (niederohmiger Wert- kleinste Höhenanhebung, ca. 2 dB). Treten trotz einwandfreiem Antennensignal Zeichenfehler auf, R 2857 langsam nach links verstellen, bis Fehler verschwinden. Nicht weiterdrehen, da Fehlerhäufigkeit wieder zunehmen kann.

Während des Abgleiches ist es notwendig, die Seite 199 ständig neu anzuwählen, da nur so die Seite neu eingelesen wird und eine Beurteilung der Fehlerschwelle möglich ist.



**VT (GB: Teletext) instalation and matching adjustment**

When fitting the Videotext (GB: Teletext) plug-in board, the Videotext plug plate has to be removed (" see circuit diagram in the Service Manual).

The control R 2857 is set in the fully clockwise position when the unit is delivered (low-resistance- smallest treble boost: approx. 2 dB) If, with a perfect aerial signal character faults occur, turn R 2857 slowly anticlockwise until the faults disappear. Do not turn R 2857 up any further as error rate may increase again.

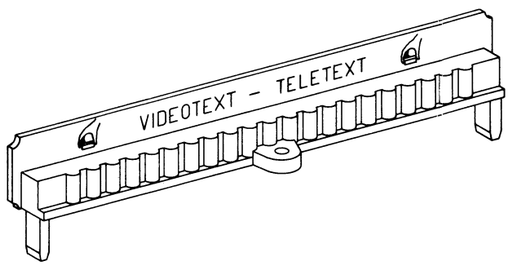
Page 199 must always be selected anew during the adjustment, as only this effects a new read-in of the page making it possible to evaluate the error level.

**Montaggio e taratura d'addatamento della scheda ad innesto**

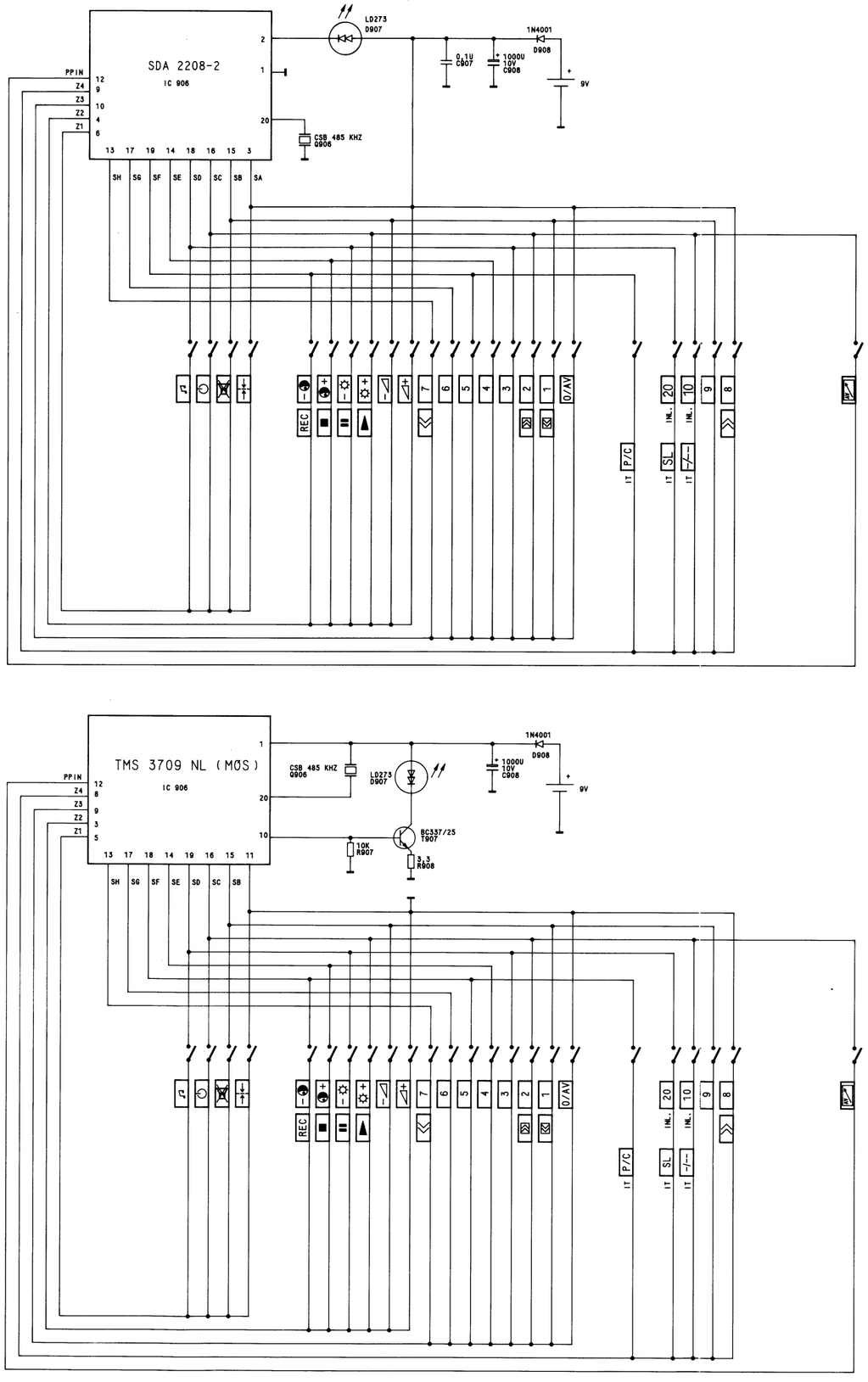
Nel montare la scheda televideo togliere la piastrina televideo (* vedere lo schema del televisore nel manuale di servizio).

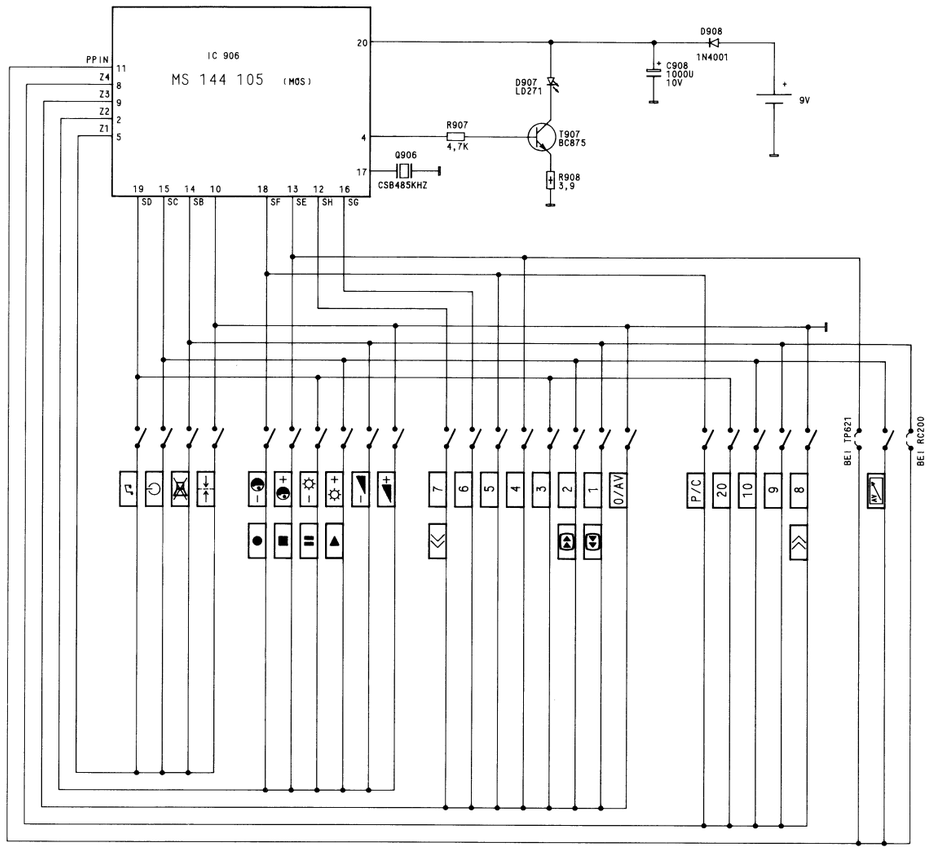
Il regolatore R 2857 viene fornito col cursore girato completamente all'estrema destra (a baso valore ohmico- minima esaltazione delle alte frequenze, ca. 2 dB). Se si manifestano errori di carattere, nonostante un perfetto segnale d'antenna, girare lentamente il cursore di R 2857 verso sinistra fino ad eliminare gli errori. Non girarlo oltre può riaumentare la presenza degli errori.

Durante la taratura è necessario selezionare ripetutamente la pagina 199, poiché solo così è possibile una nuova immissione della pagina ed una valutazione della soglia degli errori.

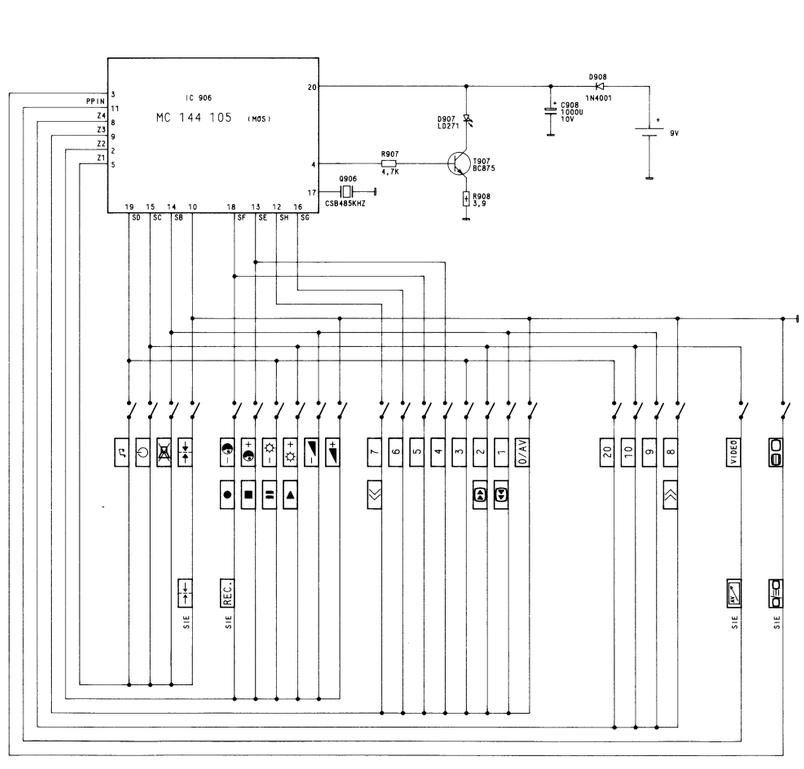


## JR - Geber


SDA 2208-2
IC 906
PPIN
Z4
Z3
Z2
Z1
SH SG SF SE SD SC SB SA
LD273
D907
CSB 485 KHZ
Q906
0,1U
C907
1000U
10V
C908
1N4001
D908
9V
REC
0/AV
P/C
SL
INK.
20
10
9
8


IC 906
MS 144 105 (MOS)
PPIN
Z4
Z3
Z2
Z1
SD SC SB SF SE SH SG
D907
LD271
R907
4,7K
T907
BC875
R908
3,9
Q906
CSB485KHZ
C908
1000U
10V
D908
1N4001
9V
BEI TP621
BEI RC200
0/AV
P/C


TMS 3709 NL (MOS)
IC 906
PPIN
Z4
Z3
Z2
Z1
SH SG SF SE SD SC SB
CSB 485 KHZ
Q906
LD273
D907
1000U
10V
C908
1N4001
D908
9V
10K
R907
BC337/25
T907
3,3
R908
REC
0/AV
P/C
SL
INK.
20
10
9
8


IC 906
MC 144 105 (MOS)
PPIN
Z4
Z3
Z2
Z1
SD SC SB SF SE SH SG
D907
LD271
R907
4,7K
T907
BC875
R908
3,9
Q906
CSB485KHZ
C908
1000U
10V
D908
1N4001
9V
SIE
REC.
VIDEO
0/AV

## Symbole und ihre Bedeutung
## Symbols and their meaning
## Simboli e loro significati

P — PROGR.

P1 — PROGR. TASTE / PROGR. BUTTON / TASTO PROGR. / TOUCHE PROGR.

M — SPEICHERTASTE / MEMORY BUTTON / TASTO DI MEMORIA / TOUCHE MEMOIRE

NORM — NORMTASTE / TV STANDARD SELECT. BUTTON / COMMUT. DI NORMA / TOUCHE DE NORME

▷▷+ — FEINABST. + / FINE TUNING + / SINT. FINE + / REGLAGE FIN +

-◁◁ — FEINABST.- / FINE TUNING - / SINT. FINE - / REGLAGE FIN -

I — SUCHLAUF BD I / SELF-SEEK BAND I / SINT. AUTOM. BANDA I / RECHERCHE AUTOM. BANDE I

III — SUCHLAUF BANDWAHL III / SELF-SEEK BAND III / SINT. AUTOM. BANDA III / RECHERCHE AUTOM. BANDE III

UHF — SUCHLAUF UHF / SELF-SEEK UHF / SINT. AUTOM. UHF / RECHERCHE AUTOM. UHF

LAUTSTAERKE / VOLUME / VOLUME SONORE

FT — FEINABST. / FINE TUNING / SINT. FINE / REGLAGE FIN

C — KANALWAHL / CHANNEL SEL. / SELEZ. CANALE / SELECT. DE CANAUX

BALANCE / BILANCIAM. / BALANCE

SUCHLAUF / SELF-SEEK / SINT. AUTOM. / RECHERCHE AUTOM.

U I/III — SCHALTSP. BANDWAHL / BAND SEL. SWITCHING VOLTAGE / TENS. DI COMMUT. SELEZ. BANDA / TENS. DE COMMUT. SELECT. BANDE

U VHF — SCHALTSP. VHF / SWITCHING VOLT. VHF / TENS. DI COMMUT. VHF / TENS. DE COMMUT. VHF

U UHF — SCHALTSP. UHF / SWITCHING VOLT. UHF / TENS. DI COMMUT. UHF / TENS. DE COMMUT. UHF

U AFC — SCHALTSP. AFC / SWITCHING VOLT. AFC / TENS. DI COMMUT. AFC / TENS. DE COMMUT. AFC

U AV — SCHALTSP. AV / AV SWITCHING VOLT. / TENS. DI COMMUT. AV / TENS. DE COMMUT. AV

U NORM — SCHALTSP. NORM / SWITCHING VOLT. STANDARD / TENS. DI COMMUT. NORMA / TENS. DE COMMUT. STANDARD

U 50/60HZ — SCHALTSP. KOINZ. / SWITCHING VOLT. COINC. / TENS. DI COMMUT. COINC. / TENS. DE COMMUT. COINC.

U EURO-AV — SCHALTSP. EURO-AV / SWITCHING VOLT. EURO-AV / TENS. DI COMMUT. EURO-AV / TENS. DE COMMUT. NORME FR

U VQ — SCHALTSP. VIDEO QUELLE / SWITCHING VOLT. VIDEO SOURCE / TENS. DI COMMUT. SORG. VIDEO / TENS. DE COMMUT. SOURCE VIDEO

U DATA — SCHALTSP. DATENBETR. / SWITCHING VOLT. DATA MODE / TENS. DI COMMUT. DATI / TENS. DE COMMUT. FONCT. DONNEES

U 4,5MHZ — SCHALTSP. 4,5 MHZ / SWITCHING VOLT. 4,5 MHZ / TENS. DI COMMUT. 4,5 MHZ / TENS. DE COMMUT. 4,5 MHZ

U τ — REGELSP. VERZOEGERT / DELAYED CONTR. VOLTAGE / TENS. DI CONTR. RITARD. / TENS. DE REGUL. RETARDEE

U TUN. — ABSTIMMSP. TUNER / TUNING VOLT. TUNER / TENS. DI SINTONIA TUNER / TENS. D'ACCORD TUNER

U AFC — REGELSP. AFC / AFC CONTROL VOLT. / TENS. DI CONTR. AFC / TENS. DE REGUL. AFC

U MUTE — STUMMSCHALTUNG / MUTING / SILENZIAMENTO / SILENCIEUX

TASTIMPULS / GATING PULSE / IMPULSO A CADENZA / IMPULS. DE DECLENCHEMENT

VERT. — VERT. TASTIMPULS / VERT. GATING PULSE / IMP. A CADENZA VERT. / IMP. TRAME

VERT. — VERT. PARABEL / VERT. PARABOLA / PARABOLA VERT. / SIGNAL PARABOLIQUE

VERT. — VERT. SAEGEZAHN / VERT. SAW TOOTH / DENTE DI SEGA VERT. / SIGNAL DENT DE SCIE

HOR. — HOR. ANSTEUERUNG / HORIZ. DRIVE / PILOTAGGIO ORIZZ. / SYNCHR. LIGNES

REF. — REF. IMPULS / REFERENCE PULSE / IMP. DI RIFER. / IMP. DE REFER.

SCHUTZSCHALTUNG / CIRCUIT PROTECTION / CIRCUITO DI PROTEZIONE / CIRCUIT DE SECURITE

FARBTON / TINT / TINTA / TEINTE

REF. — REF. LAUTSTAERKE / VOLUME REF. VOLT. / TENS. DI RIF. VOLUME / TENS. DE REF. VOL. SONORE

HELLIGKEIT / BRIGHTNESS / LUMINOSITA' / LUMINOSITE

KONTRAST / CONTRAST / CONTRASTO / CONTRASTE

FARBKONTRAST / CONTRAST COLOUR / CONTRASTO COLORE / CONTRASTE COULEUR

FBAS — FBAS-SIGNAL / CCVS SIGNAL / SEGNALE SVCC / SIGNAL VIDEO COMPOSITE

SSC — SUPERSANDCASTLE

SB — STRAHLSTR. BEGR. / BEAM CURRENT LIM. / CORRENTE CATODICA MEDIA LIM. COUR. DE FAISCEAU

SSB — SPITZ. STRAHLSTR. BEGR. / PEAK BEAM CURRENT LIMITING / CORR. CATODICA DI PICCO LIM. DE FAISCEAU CRETE

R — ROT-SIGNAL / RED SIGNAL / SEGNALE ROSSO / SIGNAL ROUGE

G — GRUEN-SIGNAL / GREEN SIGNAL / SEGNALE VERDE / SIGNAL VERT

B — BLAU-SIGNAL / BLUE SIGNAL / SEGNALE BLU / SIGNAL BLEU

Y — Y-SIGNAL / SEGNALE Y / SIGNAL Y

F — F-SIGNAL / CHROMA SIGNAL / SEGNALE F / SIGNAL CHROMA

SW — SCHWARZWERT / BLACK LEVEL / LIVELLO DEL NERO / NIVEAU DU NOIR

NF — NF-SIGNAL / AF SIGNAL / SEGNALE BF / SIGNAL BF

NF-L — NF-SIGNAL LINKS / AF SIGNAL LEFT / SEGNALE BF SINISTRA / SIGNAL BF GAUCHE

NF-R — NF-SIGNAL RECHTS / AF SIGNAL RIGHT / SEGNALE BF DESTRA / SIGNAL BF DROIT

EURO-AV VIDEO — VIDEO SIGNAL EURO-AV / SEGNALE VIDEO EURO-AV / SIGNAL VIDEO NORME FR

EURO-AV AUDIO — AUDIO SIGNAL EURO-AV / SEGNALE AUDIO EURO-AV / SIGNAL AUDIO NORME FR

LED — SCHALTSP. LED / LED SWITCHING VOLT. / LED TENS. DI COMMUT. / TENS. DE COMMUT. LED

IR — IR-SIGNAL / SEGNALE IR / SIGNAL IR

U G1 — SPG. GITTER 1 / VOLTAGE GRID 1 / TENS. GRIGLIA 1 / TENS. GRILLE G1

U FOC. — FOKUSSP. / FOCUSSING VOLTAGE / TENS. DI FOCALIZZ. / TENS. DE FOCALIS.

U H — HOCHSPANNUNG / EHT VOLTAGE / ALTA TENS. / HAUTE TENS.

U SG — SCHIRMGITTERSP. / SCREEN-GRID VOLT. / TENS. GRIGLIA SCHERMO / TENS. GRILLE-ECRAN

TE — TEXT ENABLE

SCL — $I^2C$-CLOCK

VCL — VCR-CLOCK

ICL — I-BUS-CLOCK

SDA — DATEN / DATA / DATI / DONNEES

ZF — ZF-SIGNAL / IF SIGNAL / SEGNALE FI / SIGNAL FI

PP — PAL PRIORITAET / PAL PRIORITY / PRIORITA' PAL / PRIORITE PAL

F-DIR. — F-SIGNAL DIREKT / F SIGNAL DIRECT / SEGNALE F DIRETTO / SIGNAL CHROMA DIRECT

F V — FV-SIGNAL / FV SIGNAL / SEGNALE FV / SIGNAL FY

F U — FU-SIGNAL / FU SIGNAL / SEGNALE FU / SIGNAL FX

F-VERZ — F-SIGNAL VERZOEGERT / F SIGNAL DELAYED / SEGNALE F RITARD. / SIGNAL CHROMA RETARDE

DL — VERZOEGERUNGSLEITUNG / DELAY LINE / LINEA DI RITARDO / LIGNE A RETERD

U 200HTZ — SCHALTSP./SCHUTZFUNKTION / SWITCHING VOLT. /PROTECTIVE FUNCTION / TENS. DI COMMUT. /FUNZ.DI PROTEZ. / TENS. DE COMMUT. / SECURITE

FBAS SYNC. — FBAS/SYNC.-SIGNAL / CCVS/SYNC. SIGNAL / SEGNALE SINCR. /VIDEO COL. COMPOSITO / SIGNAL SYNC./VIDEO COMPOSITE

SYNC. — SYNC.-SIGNAL / SYNC. SIGNAL / SEGNALE SINCR. / SIGNAL SYNC.

U 50/60 HZ — SCHALTSP. 50/60HZ / SWITCHING VOLT.50/60HZ / TENS. DI COMMUT. 50/60HZ / TENS. DE COMMUT. 50/60HZ

U BTX — SCHALTSP. BTX / SWITCHING VOLT. BTX (VIEWDATA) / TENS. COMMUT. VIDEOTEL / TENS. COMMUT. VIDEOTEXTE

SYNC. VT — SYNC. VT / SYNC. VT (TELETEXT) / SINCR. TELEVIDEO / SYNC. TELETEXTE

SYNC. BTX — SYNC. BTX / SYNC. BTX (VIEWDATA) / SINCR. VIDEOTEL / SYNC. VIDEOTEXTE

U RESET — SCHALTSP. RESET / SWITCHING VOLT. RESET / TENS. COMMUT. RESET

U STAND BY — SCHALTSP. STAND BY / SWITCHING VOLT. STAND BY / TENS. COMMUT. STAND BY / TENS. COMMUT. VEILLE

U HUB — SCHALTSP. HUB / SWITCHING VOLT. DEVIATION / TENS. COMMUT. DEVIAZIONE / TENS. COMMUT. DEVIATION

U DEEM — SCHALTSP. DEEM / SWITCHING VOLT. DEEMPHASIS / TENS. COMMUT. DEENFASI / TENS. COMMUT. DESACCENT.

ZEILENBREITE / LINE WIDTH / LARGHEZZA DI RIGA / AMPLITUDE HORIZONTALE

OST / WEST AMPLITUDE / EAST / WEST AMPLITUDE / AMPIEZZA EST / OVEST / AMPLITUDE EST / OUEST

HOR. LINEARITAET / HORIZ. LINEARITY / LINEAR. ORIZZ. / LINEAR. HORIZONT.

BILDLAGE HOR. / HORIZ. PICTURE POSITION / POSIZIONE ORIZZ. D'IMMAGINE / CADRAGE HORIZONT.

FOKUSREGLER / FOCUS CONTROL / REGOLAT. DI FOCALIZZ. / REGLAGE DE FOCALISATION

BILDLAGE VERT. / VERT. PICTURE POSITION / POSIZ. VERT. D'IMMAGINE / CADRAGE VERTICAL

BILDAMPLITUDE / FIELD AMPLITUDE / AMPIEZZA D'IMMAGINE / AMPLITUDE VERTICALE

TRAPEZ / TRAPEZIUM / TRAPEZIO / TRAPEZE

HOR. FREQUENZ / HOR. FREQUENCY / FREQ. ORIZZ. / FREQ. HORIZ.

VERT. FREQUENZ / VERT. FREQUENCY / FREQ. VERT.

VERT. LINEARITAET / VERT. LINEARITY / LINEAR. VERT. / LINEAR. VERT.

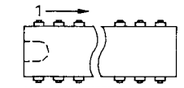
OST/WEST SYMMETRIE / EAST/WEST SYMMETRY / SIMMETRIA EST/OVEST / SYMMETRIE EST/OUEST

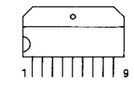
⚠ BEI ERSATZ AUS SICHERHEITSGRUENDEN NUR ORIGINALBAUTEILE VERWENDEN.
FOR REASONS OF SAFETY USE ORIGINAL PARTS ONLY WHEN REPLACING.
IN CASO DI SOSTITUZIONE UTILIZZARE PER RAGIONI DI SICUREZZA SOLAMENTE PEZZI DI RICAMBIO ORIGINALI.
EN CAS DE REMPLACEMENT N'UTILISER, POUR DES RAISONS DE SECURITE, QUE DES PIECES D'ORIGINE.

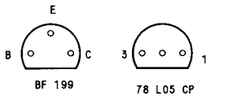
BEI EINGRIFFEN SCHUTZMASSNAHMEN FUER MOS-BAUTEILE BEACHTEN!
WHEN HANDLING MOS-CIRCUITS, ALWAYS OBSERVE THE MOS PROTECTION MEASURES!
ADOPERANDO COMPONENTI O CIRCUITI MOS OSSERVARNE LE CORRISPONDENTI MISURE DI PROTEZIONE!
LORS DE LA MANIPULATION DES CIRCUITS MOS, RESPECTER LES PRESCRIPTIONS MOS!

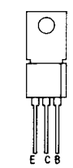


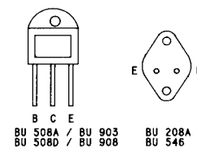
## Wichtige Schaltzeichen
## Important circuit simbols
## Segni circuitali importanti

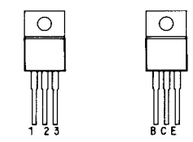


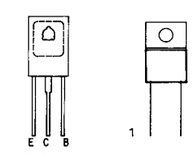



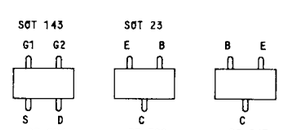



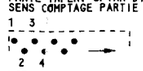



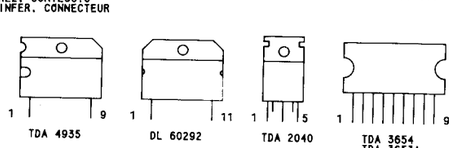




STECKERUNTERTEIL ZAEHLRICHTUNG
PLUG BOTTOM PART COUNTING DIRECTION
PARTE INFER. SPINA DIREZ. CONTEGGIO
SENS COMPTAGE PARTIE INFER. CONNECTEUR




LOETSEITE
SOLDER SIDE
LATO SALDATURE
COTE SOUDURE




3/4W — 0617 DIN

1/10W — 0204 DIN

1/4W — 0207 DIN

1/2W — 0411 DIN

1W — 0411 DIN

2W — 0617 DIN

4W — 0922 DIN

WIDERSTAND NICHT BRENNBAR
RESISTOR NOT FLAMMABLE
RESISTENZA NON INFIAMMABILE
RESISTANCE ININFLAMMABLE

DRAHTWIDERSTAND
WIRE RESISTOR
RESISTENZA A FILO
RESISTANCE BOBINEE

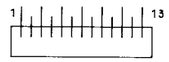
SICHERUNGSWIDERSTAND
SAFETY RESISTOR
RESISTENZA DI SICUREZZA
RESISTANCE DISJONCTABLE

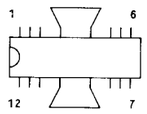
KONDENSATOR
CAPACITOR
CONDENSATORE
CONDENSATEUR
250V~
400V~
630V~
1000V~

FOLIE
FOIL
A FOGLIA
FOLIO PLASTIQUE

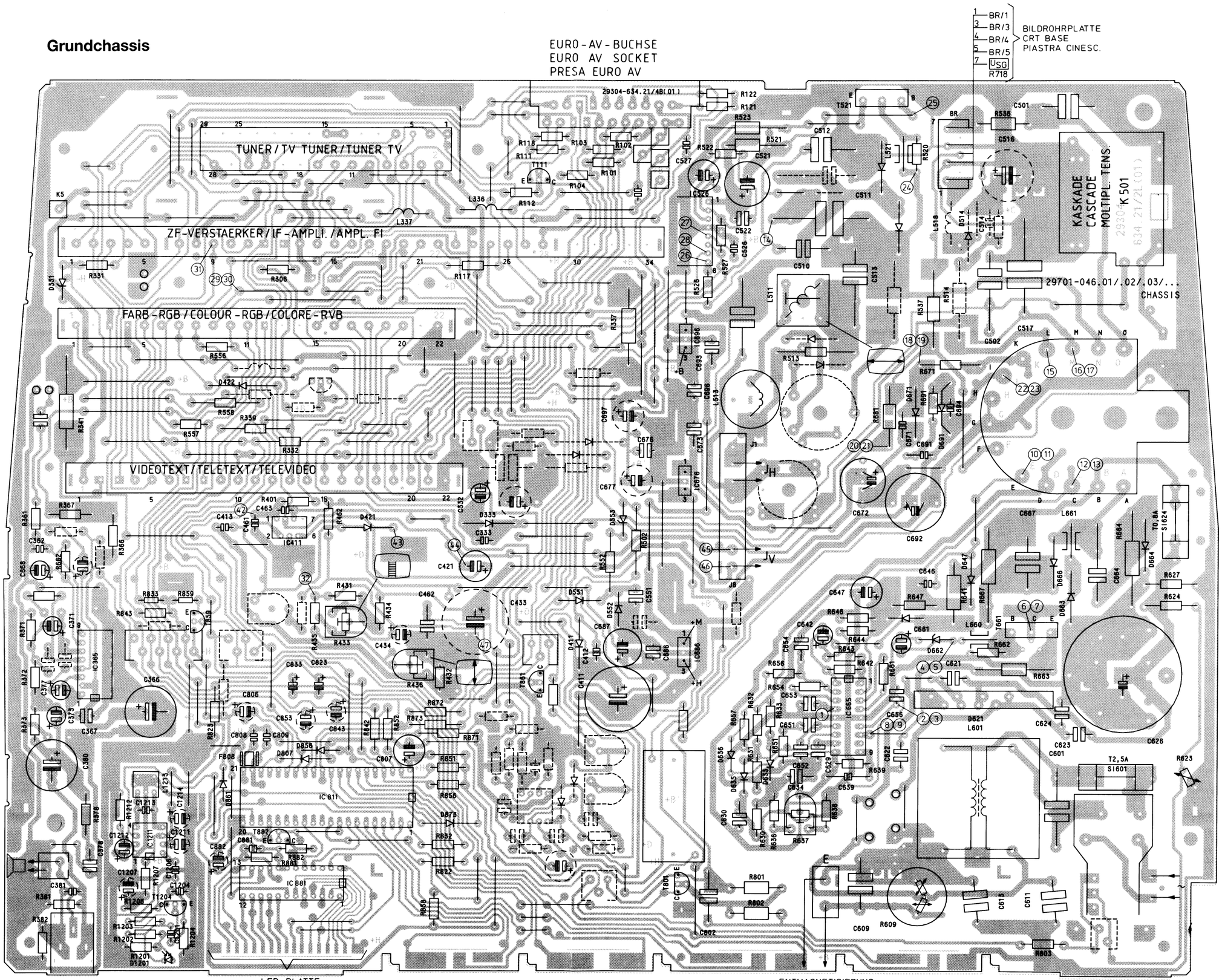
KERAMIK
CERAMIC
CERAMICO
CERAMIQUE

ELKO
ELECTROLYTIC
ELETTROLITICO
ELECTROLYTIQUE

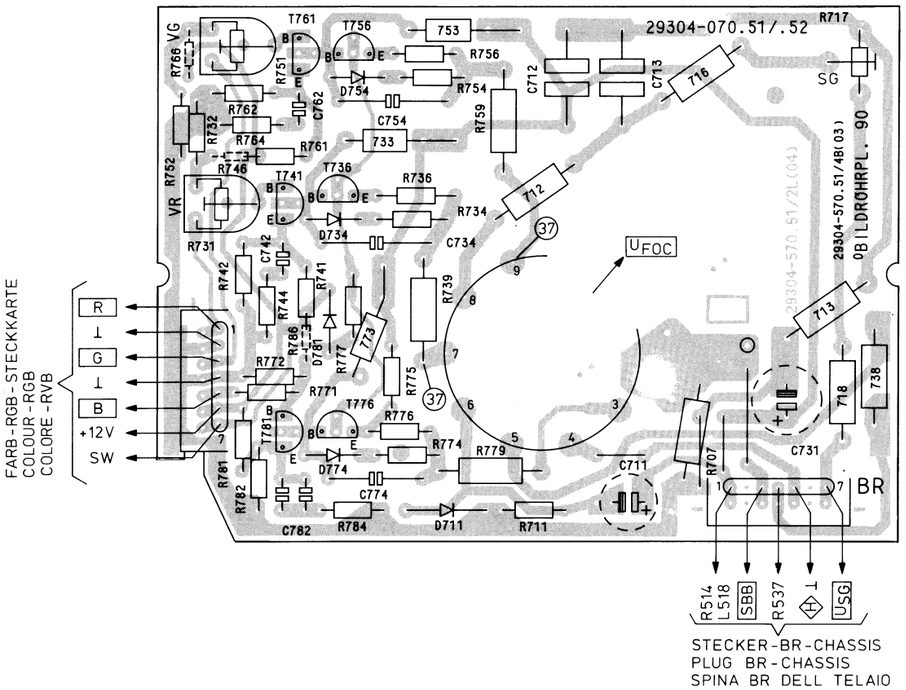


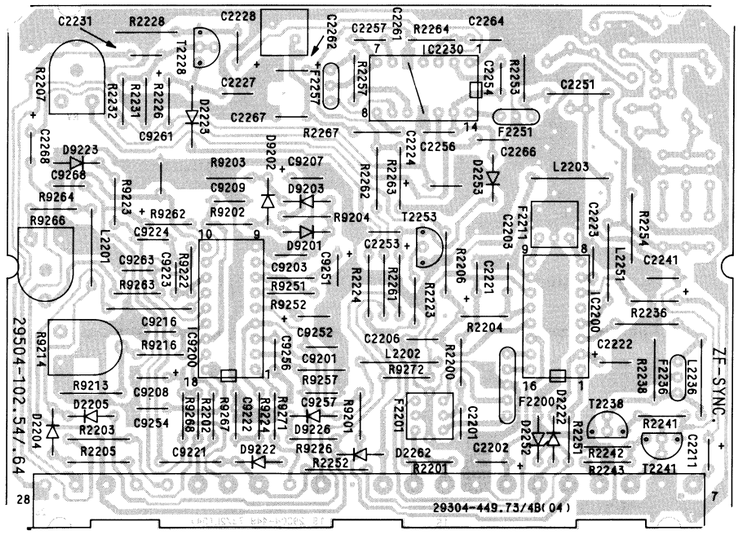
## Grundchassis



## Bildrohr - Platine 75 4706

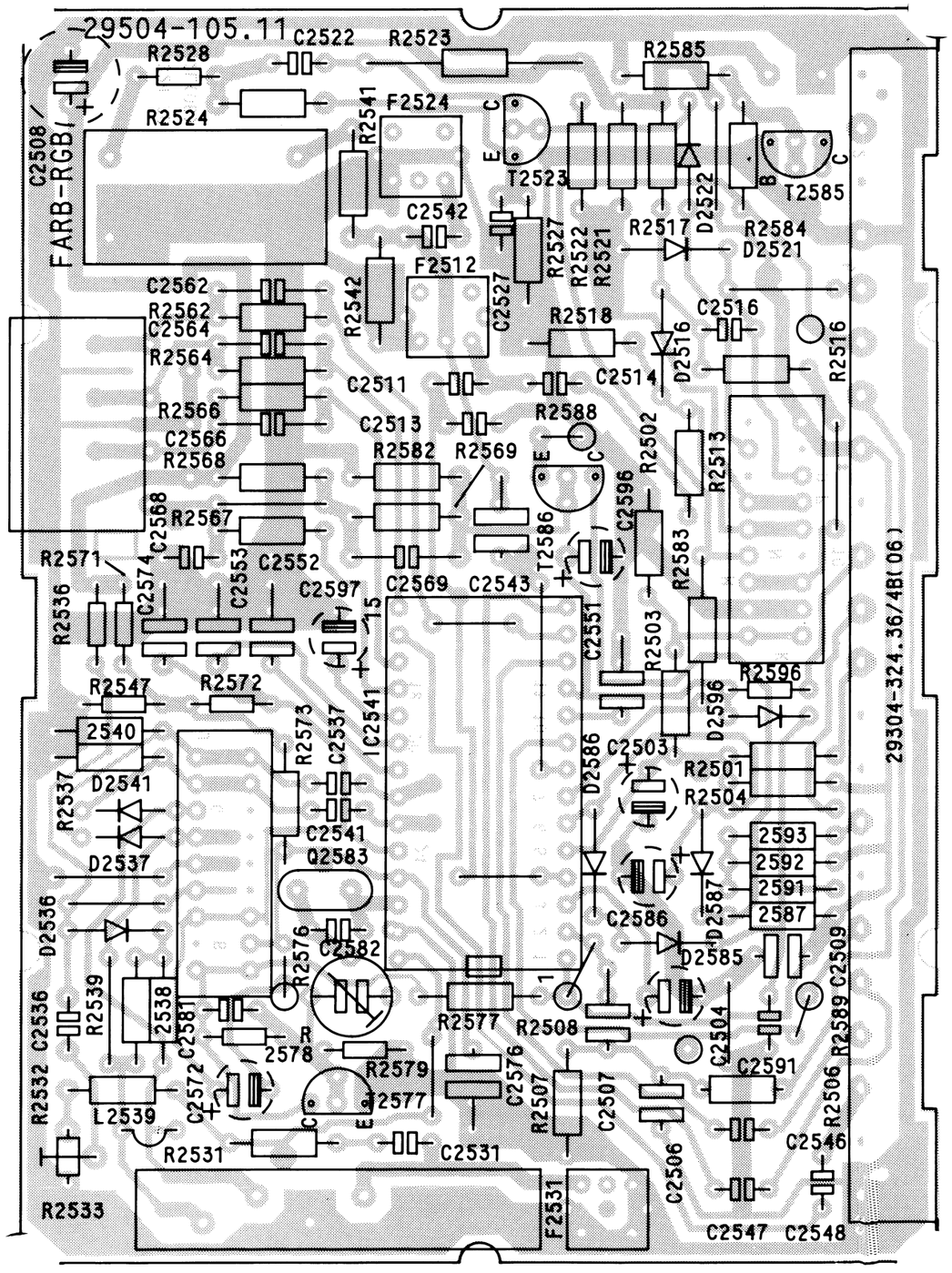



## ZF/Sync. 75 4705

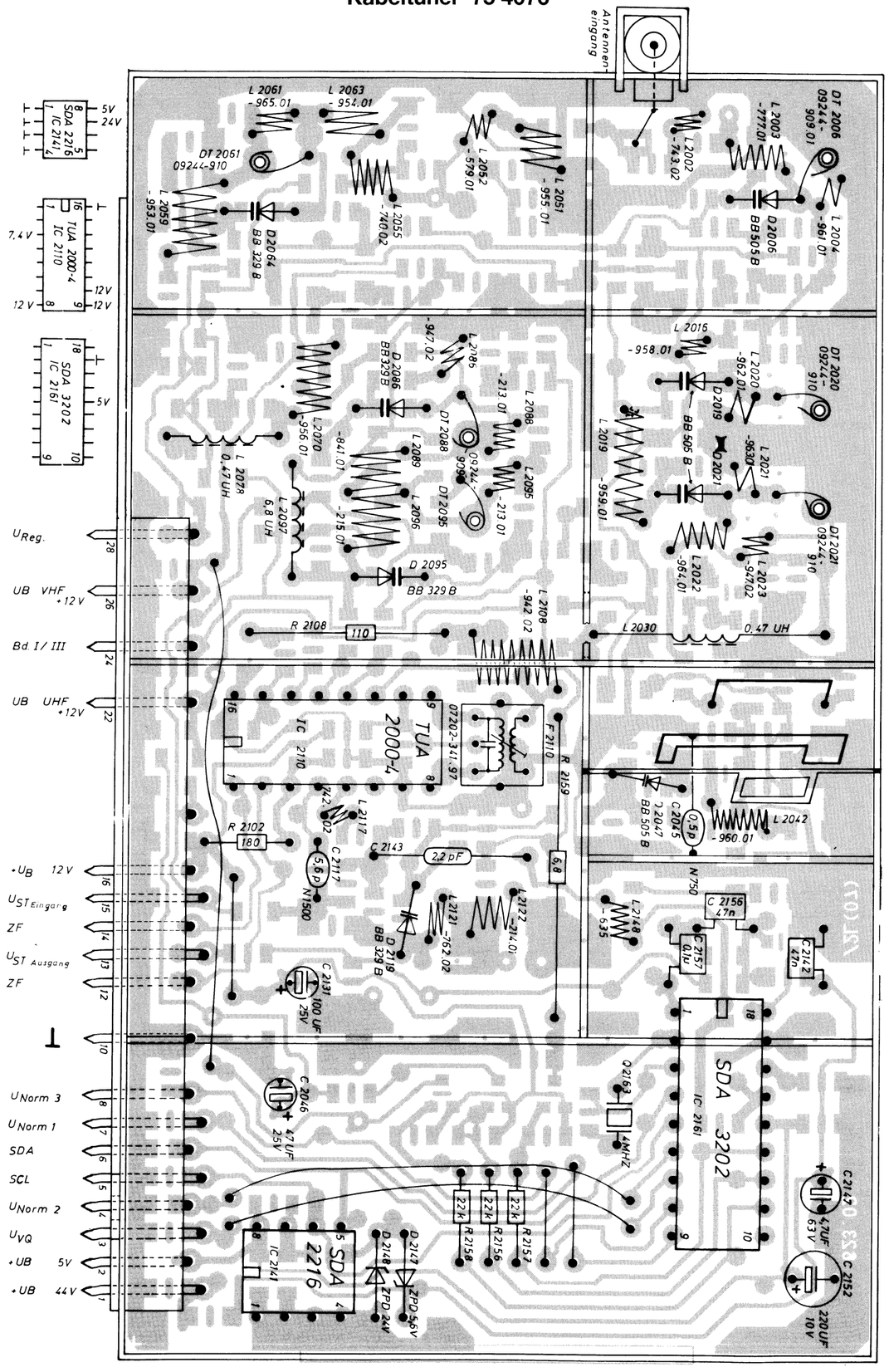





## Farb/RGB 75 4073

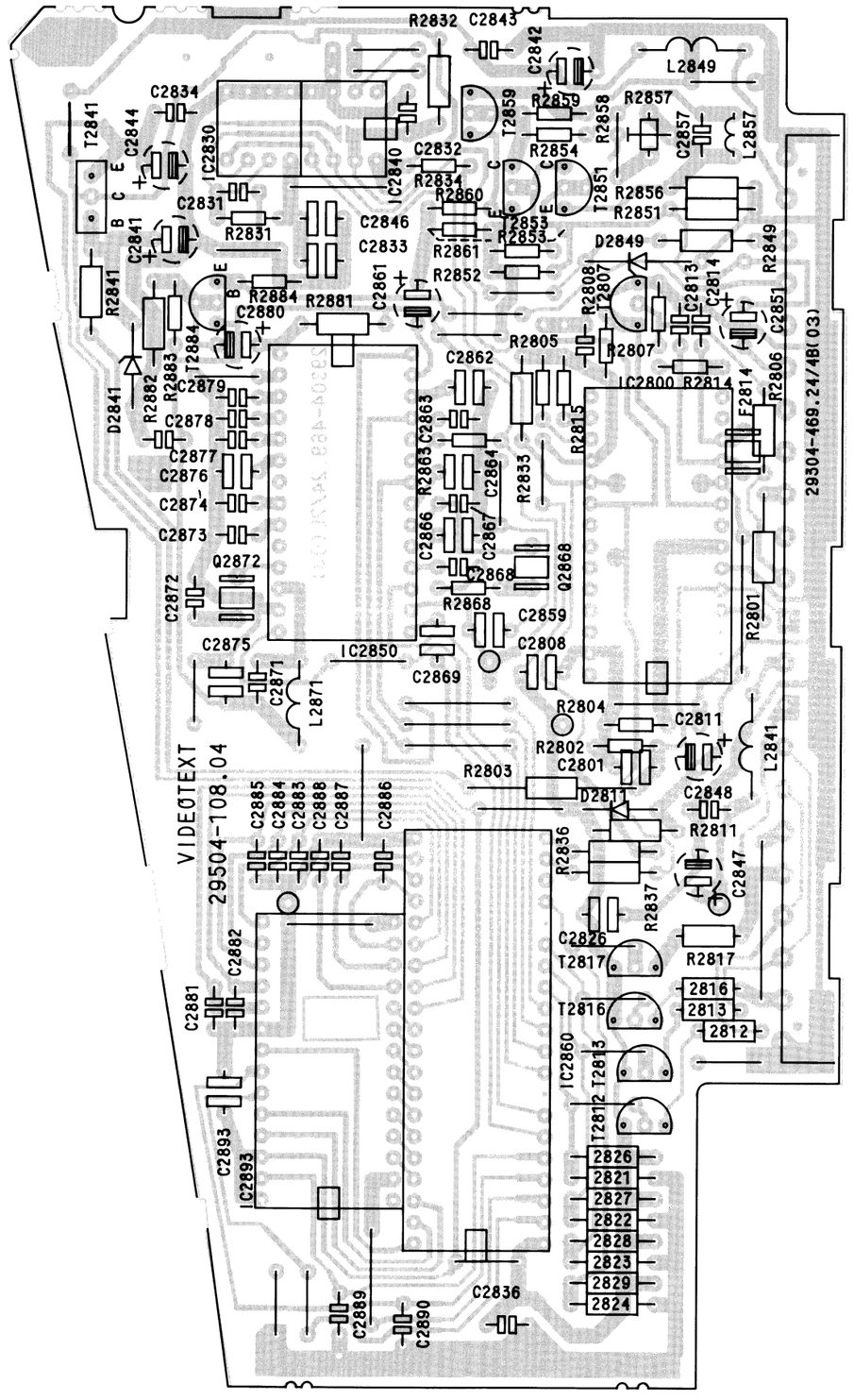


## Kabeltuner 75 4076






## Videotext 75 4085



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